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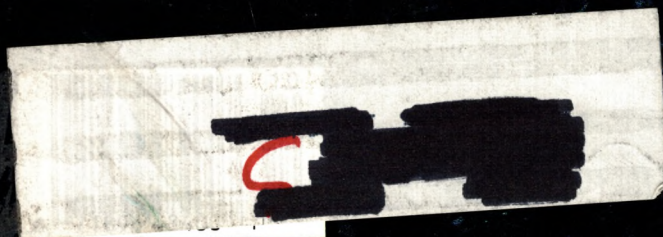
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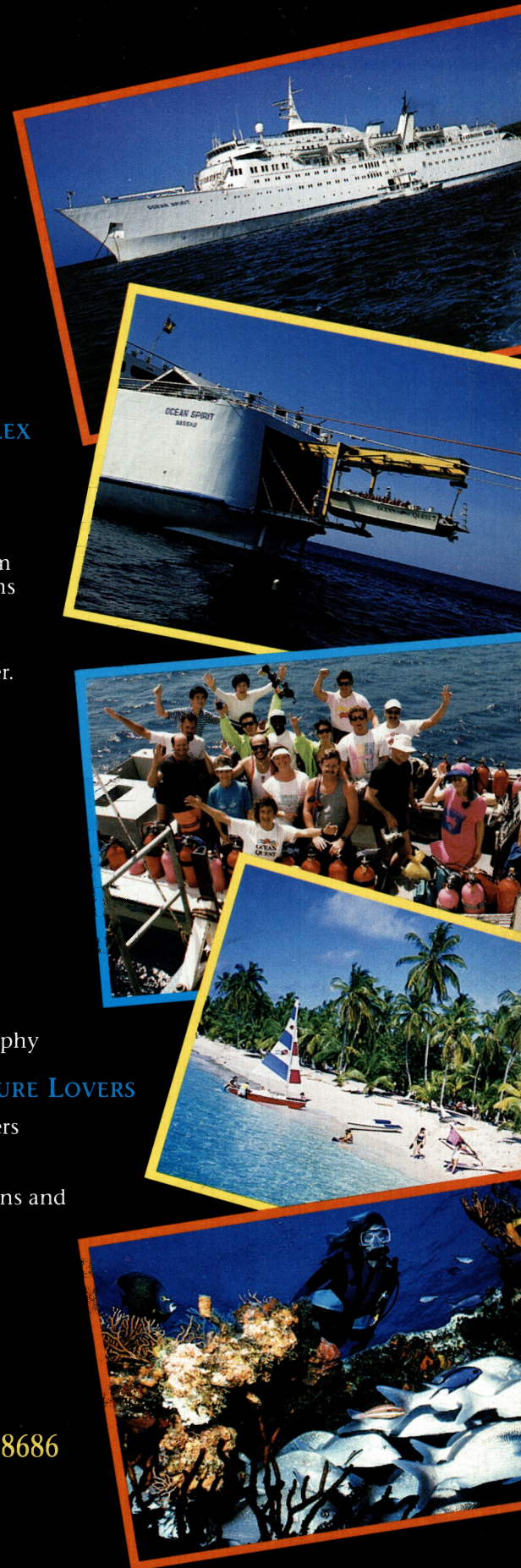
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PACIFIC DIVER™

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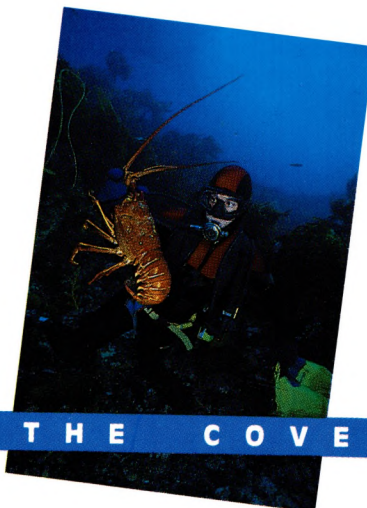
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ON THE COVER

Bottom Scratcher crew member Christopher Best bags a big one at Cortes Bank. Photo by Darren Douglass.



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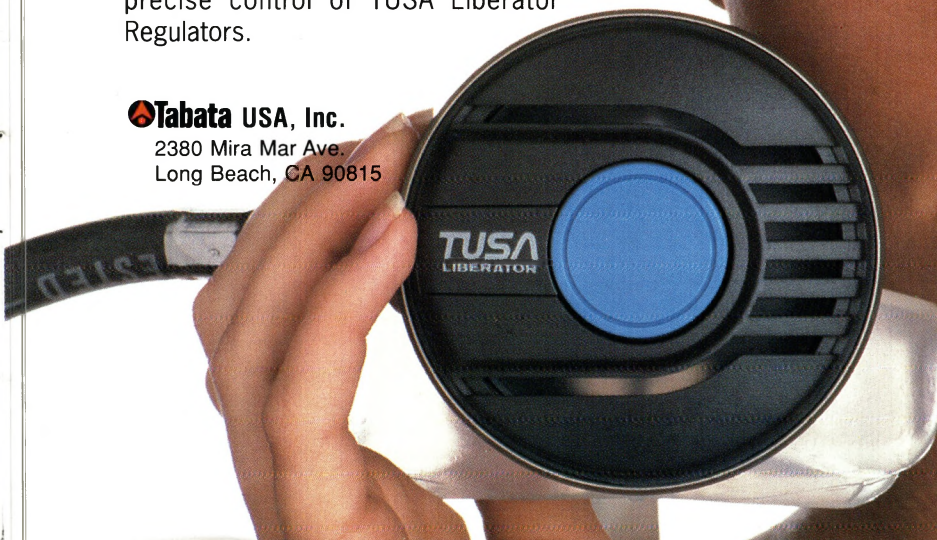
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To the Protectors of Mankind

The other day I happened upon an article in one of those *other* diving magazines pushing for mandatory C-card recertifications, written by yet another well-meaning individual who presumes to know what's best for all of us.

I have to tell you, the argument that the diving industry is responsible for protecting us divers from ourselves is getting pretty stale. Don't get me wrong; I think some kind of a refresher course can be a good thing for divers who feel they've been out of the water for too long and want to brush up on their skills. But that's a personal call, and so what I want to know is, why do these self-proclaimed protectors of mankind think the rest of us are too stupid to make these kinds of judgments on our own?

I think we would all agree that scuba diving is an inherently dangerous sport. For that reason, the diving industry should provide adequate training so that we can enjoy our sport in as safe a manner as is humanly possible.

From where I stand, I'd say the industry already does this.

What's more, because diving skills can get rusty if not used regularly, the diving industry has an obligation to make sure that there are refresher courses available to any divers who want to sharpen their in-the-water skills.

The industry already does this too.

It seems to me that the sport diving industry is providing us with the tools we need to dive safely. Now what we do with these tools is up to us.

The same individuals and organizations pushing for mandatory recertifications tend to also favor imposing "currency" requirements through the use of logbooks. As it stands, all training agencies already say they support the use of logbooks. But most of them aren't quite sure why some people think it's necessary to impose a "mandatory use" requirement on the general diving population.

I'm not sure either. It appears that supporters of these regulations feel that logbooks reveal a diver's skill level which can help diving "authorities" determine whether the logbook holder is capable of diving or not. However, I think we all know that logbooks reveal what their owners want them to reveal. That may include an honest assessment of skill levels, and it may not. The only people who can

possibly know for sure are the divers making the entries.

Forged logbook entries are not deadly, as some proponents of currency requirements have claimed. Dumb divers are deadly. And there's no way we can possibly eliminate dumb divers through either mandatory recertifications or mandatory logbook use.

That's why this whole idea of "mandatory" *anything* seems so ridiculous. By catering to the lowest common denominator, these lovers of regulations, in trying to protect the inevitable handful of dumb divers, are perfectly willing to entangle an entire population of smart divers in red tape, the very divers who would sign up for a refresher course in a second if they felt they needed one, and they'd do it without having to be told by Big Brother.

In the long run, mandatory recertifications are just going to piss off a very large and very independent group of divers, and perhaps even drive some of them away from their sport. Not because they're unsafe divers, but because they're fed up with meddling rule-makers. And when the dust settles, we'll still have that same handful of dumb divers who prompted all this fuss in the first place, and they'll still be forging logbooks and diving in places where they have no business. And we will *still* not be able to save them from themselves.

The writer of the article I referred to earlier wrapped up his argument in favor of mandatory recertifications by saying that "Until recertifications or currency requirements become mandatory, you have to decide the issue for yourself."

YOU HAVE TO DECIDE THE ISSUE FOR YOURSELF. Why does he make that sound like such a bad thing? Making our own decisions shouldn't be looked upon as something we have to *endure* until we can get some regulatory body to come in and do our thinking for us. Contrary to what all these bureaucratic types think, the vast majority of us tend to be pretty good at making decisions, and if given the opportunity, we will almost always come up with better choices than they will.

So to all you busybodies out there who spend so much of your time deciding how everybody else should be diving or thinking or living, all I've got to say is, Hey guys, worry about yourselves, will you? This may come as quite a shock to you, but the truth is, we don't need — or want — your protection.

John Brumm
Editor

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LETTERS

"Baja John" in Hot Water — Again

I am outraged by the article written by "Baja John" in your May/June 1990 issue. This overly imaginative writer insinuates that ALL marlin fishermen are fat beer drinking slobs with absolutely no regard for the environment. Nothing could be further from the truth! Why doesn't this modern-day "Bambi-ite" get off his high horse and come down to earth?

For your information, these "would-be Hemingways," as Baja John puts it, actually release most marlins they catch. In fact, most charter boat operators *require* that these magnificent fish be cut free except in the case of a first-time trophy. Besides, the natives [*natives?* — Ed] love marlin and gladly accept any fish given them, which are used to feed many locals who might otherwise go hungry.

Many Americans who travel to Cabo go there on their annual vacations for the chance to catch one of our ocean's most spectacular animals. These adventurers are solid contributors to our American society and most are fully aware of the problems with the environment. I hope that I never see this kind of irresponsible journalism in your fine magazine again. Please remember that hunters and fishermen, like Izaak Walton, were and still are our nation's true conservationists!

Bill Rhinehart
Riverside, CA

Supporters State Their Views

I hope you folks will continue with the helpful criticism in your product reviews, and further, that you not become 95 percent advertisements and travel spots on the same old locations like that OTHER dive magazine! PACIFIC DIVER fills an important niche and I will continue my support.

Rob Wilder
Santa Barbara, CA

The article in your July/August issue on abalone by Joni Dahlstrom was very timely. The word about the environmental condition of the ocean needs to get out. I also like the way you handle spearfishing in the magazine (low-key). I think most photographers started with spearfishing, and I know that it helps me to draw on my spearfishing skills when I'm approaching a gamefish for a picture.

Richard Herrmann
Poway, CA

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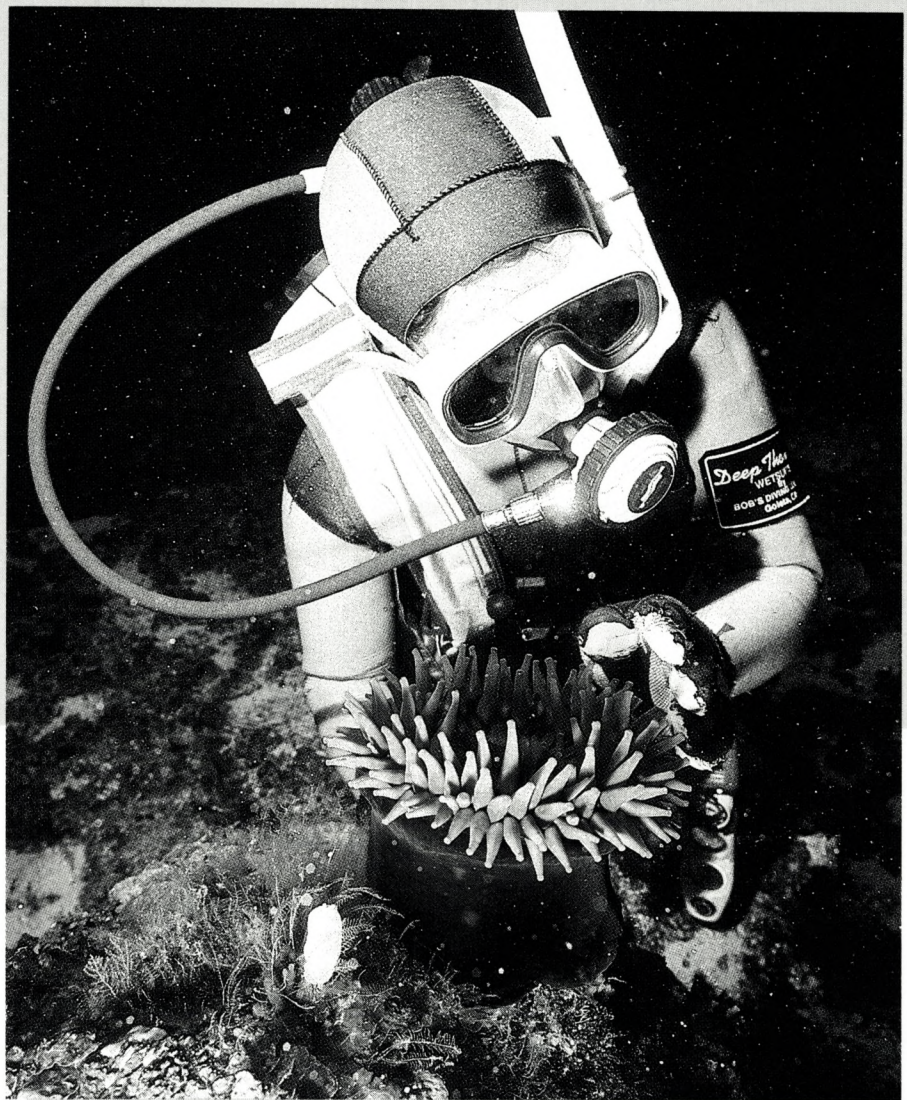
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Divers Make First Known Descent on Osborn Bank

Last June 26th, Jon Hardy, Lorraine Sadler, Chipper Pastron and Paul McCallum made what they believe to be the first dive ever on Osborn Bank, a large seamount 13 miles off Catalina Island and about five miles from Santa Barbara Island. Osborn Bank comes to within 120 feet of the surface, but most diving takes place in the 160-foot range. (Obviously, this is not a place for beginners.)

According to McCallum, horizontal visibility was 160 feet, the water temperature was 54 degrees, and purple coral was virtually everywhere. This shot of Lorraine Sadler examining a large anemone in 160 feet of water was taken by McCallum, thought to be the first photograph ever taken at Osborn Bank.

Has anybody else ever been to Osborn Bank? Drop us a note and tell us your story.



Lorraine Sadler exploring the depths at Osborn bank.

Photo by Paul McCallum.

Recreational Diving Research Foundation Begins Operations

The Recreational Diving Research Foundation has officially opened to fund and coordinate research that will add to the safety of recreational diving.

The number of recreational divers continues to grow steadily. Today, there are an estimated 2.7 million recreational scuba divers in the United States with some 500,000 new divers being trained each year.

However, while the number of people involved in sport diving has increased, diving research support has dramatically decreased. There are still many aspects of diving physiology and principles of treatment that are not fully understood. The Recreational Diving Research Foundation was formed to help address these shortcomings in diving knowledge.

The foundation's first efforts will involve fund-raising and the establishment of research grant request procedures. Initial funding has been provided by PADI and Divers Alert Network (DAN). A contact program has been started within the diving community to enlist other companies and individuals to participate in the fund-raising effort.

Persons or organizations wishing to contribute to the foundation may send their tax deductible donations to: Recreational Diving Research Foundation, Inc., c/o Divers Alert Network, Box 3823, Room 0586, Duke South, Hyperbaric Chamber, Duke Medical Center, Durham, NC 27710.

Diving Accident in Monterey Area Claims Campbell Woman

Last April Monterey experienced another diving related fatality. Joan Hess, a 37-year-old Campbell woman, drowned while diving from the dive boat *Cypress Sea* near Yankee Point. She was diving with her husband and brother when the two men surfaced alone. Once they discovered she was not with them, they returned to where they last saw her and searched for 30 minutes before finding her unconscious, in 60 feet of water, without her regulator in her mouth. This was the 75th diving fatality along the Monterey Coast since 1971.

Central Coast Ab Poaching Continues Unabated

San Mateo County has recently been an active area for abalone poachers. According to Department of Fish & Game ranger Greg Johnson, during the month of May,

30 arrests were made for taking more than 40 undersized abs between Franklin Point and Pedro Point in Pacifica. From December 1989 to May 1990 there were 50 arrests for taking more than 10 abalone, and two arrests for taking 20 and 50 undersized abalone.

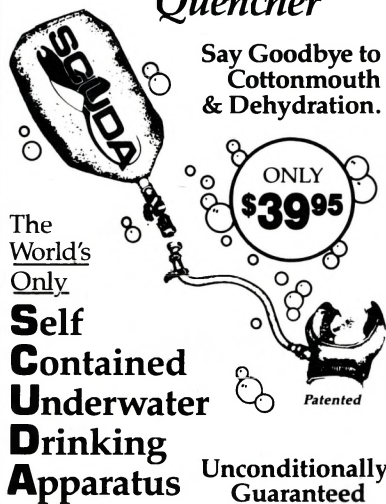
However, according to Johnson, sport divers are not the problem. In fact, sport divers have been helping Fish & Game by reporting poaching incidents they have witnessed. Fish & Game fully appreciates any and all help in catching poachers, but stresses that divers should not attempt to stop the poachers themselves. Get license or boat numbers and descriptions of the poachers, and then report the information to Fish & Game as soon as possible.

Department of Fish & Game numbers are (707) 944-5500 for the North Coast; (415) 688-6340 for San Mateo County; or (408) 649-2870 for Monterey County.

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DIVERS UPDATE

Point of View

The Big Abalone Rip-Off

by Paul Turnbull

Blatant abalone poaching is occurring along the north coast of California. The base cause is commercial fishing laws inspired by the commercial fishing lobby. The problem is so severe that quality recreational abalone diving on the north coast may soon be a thing of the past.

Several years ago the commercial fishing industry tried to legalize the taking of abalone for commercial purposes in several Northern California counties. They were soundly rebuffed by thousands of concerned citizens, but hundreds of outlaw ab hunters opened the counties anyway.

Some of these poachers hold both commercial abalone and urchin licenses; others funnel abalone to restaurants and other receivers; still others use legal permit-holders as middlemen. This blatant violation of the laws protecting our wildlife resources has resulted from a series of laws put on the books by the commercial fishing lobby that actually encourage illegal poaching.

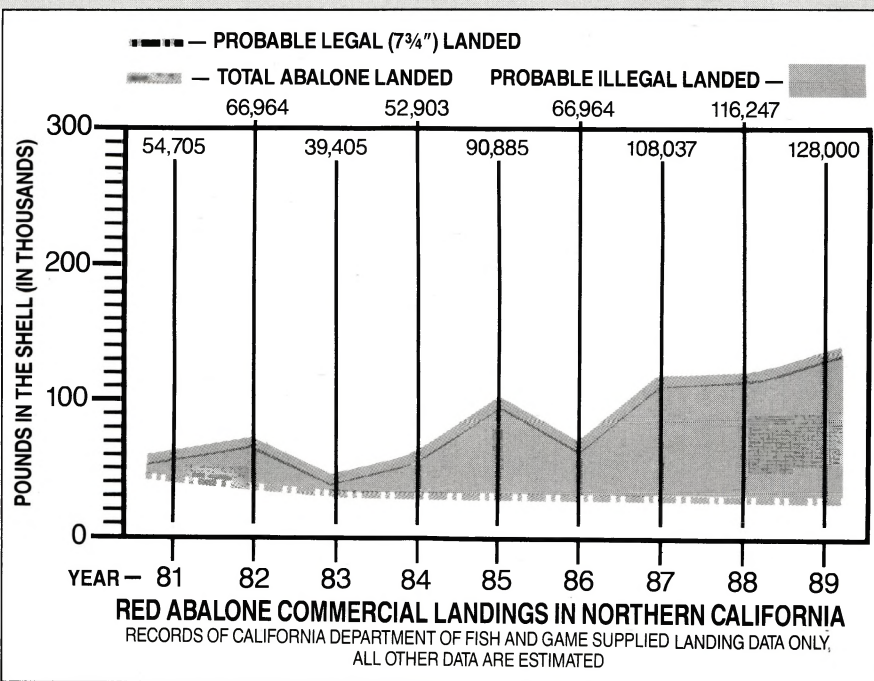
The Northern California Zone for Commercial Abalone Diving extends from Point Lobos in San Francisco County to Pigeon Point in San Mateo County, including the Farallon Islands.

The ab area at the Farallons is only about 1¼ miles square and has been dived commercially for years. Sport divers who dive in this commercial zone have reported that commercial legal-sized abs (7¾ inches or larger) are almost impossible to find. Yet, according to figures from the Department of Fish & Game listing Commercial Zone landings, in 1989 commercial divers managed to surface with 128,000 pounds of abalone. Where did all these abalone come from? Obviously, not solely from the Commercial Zone.

Abalone poaching has been most severe in the area between Santa Cruz and Pigeon Point in San Mateo County, and at Point Reyes in Marin County. Not surprisingly, the legal commercial abalone area sits right between these two areas that are now considered to be "devastated" when it comes to ab populations.

Bad Laws have Created this Problem

The 1989 commercial abalone catch of 128,000 pounds in the Northern California Zone for Commercial Abalone Diving was more than three times the 1983 commercial catch (39,405 pounds) despite the





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DIVERS UPDATE

fact that the abalone resource has been steadily decreasing. It is simply not possible for commercial ab divers to produce this much abalone from an area that is experiencing all-time population lows. Of course, there are almost twice as many licensed ab divers operating in the Commercial Zone today than there were in 1983, the result of the legislature buckling to pressure to increase abalone permits.

Current law allows a person with a commercial abalone permit to:

- Take as many abalone as he can in legal waters — absolutely no limit.
- Sport dive for abalone in areas that are closed to commercial abalone fishing.
- Process and sell abalone directly to restaurants or retail outlets with no requirement to show that the abalone are legal, and no penalty to the buyers for purchasing illegal abalone (unless conspiracy can be proved).

- Land abalone just one day after landing urchins. (This is important, because abalone are still relatively plentiful in areas that are open for urchin harvesting but closed to commercial abalone diving. The temptation for an urchin diver to retrieve an abalone staring him in the face is strong anyway; but when he knows he can land and sell it "legally" the very next day, the temptation can be overwhelming.)

What's more, to make temptation a compulsion, the law *requires* persons holding commercial abalone permits to make at least 20 landings of two dozen abalone every season to maintain their permits.

This special interest law has penalized legitimate commercial abalone divers who find themselves having to work in over-fished areas. It has not only encouraged poaching but has actually forced some ab divers into it in order to maintain their permits.

Few poachers are caught. Those who are typically get off with just a fine; seldom does anyone serve any jail time. When you consider that over \$50,000 of illegal abalone are sold *each week*, it's clear that existing penalties can easily be thought of as a reasonable cost of doing business.

What Can we do About This?

These special interest commercial fishing laws make it easy to break the law and hard to get caught. They are on the books today because the commercial fishing lobby is a very strong, organized pressure group that has successfully cajoled our legislators into doing its bidding. Now, recreational fishermen and divers have got

DIVERS UPDATE

to get better organized so we can start pushing back.

CenCal, the Central California Diving Council, is a volunteer group working to change these laws and others that go against the interests of recreational divers. As part of its ongoing efforts to fight for recreational diving causes, on Saturday, October 27, CenCal will present an Abalone Crisis Seminar at the Marin Rod and Gun Club (just off the Richmond Bridge opposite San Quentin). Speakers will discuss aspects of the abalone resource and the problems it faces. It will be held from 10 a.m. to 4 p.m. A luncheon buffet will be at 12 p.m. Attendees will be asked to give a \$15 donation to help cover the costs of CenCal's campaign to save our abalone resource. Call (415) 538-9508 for additional seminar information.

CenCal is actively seeking members to build its ranks so it can better fight for recreational diving issues. CenCal recently worked with United Anglers to ban trawl netting from the Central California near-shore coastal regions. Plus, over the past 15 years it has been fighting successfully for divers' access to shorelines, conservation issues, fair fish and game regulations and a multitude of other diver-related issues on both a state and a national level.

Memberships (\$10 per year) to CenCal are encouraged as are contributions to the CenCal Conservation Fund, which has been set up to help fund abalone protection measures and other crucial marine issues. All contributions should be sent to CenCal, P.O. Box 779, Daly City, CA 94107.

Information about CenCal and the Conservation Fund is available by calling Carol Rose at (415) 583-8492.

SoCal Divers Win PD's Scuba '90 Dive Show Drawing

During the Scuba '90 dive show held last June at the *Queen Mary* in Long Beach, PACIFIC DIVER held a booth drawing for a variety of Orca and Pelican Products diving gear. As it turned out, Nancy Stephensen of El Toro was the lucky winner of an Orca Skinny Dipper Mark II dive computer; Jeff Sanford of Glendale and John Contabile of San Gabriel both won King Pelican dive lights; Doug Becker of Anaheim won a Pelican Mini S waterproof case; and Holly Middlekauff of Los Angeles won a Pelican Mini D waterproof case. Congratulations to all, and hopefully we'll run into you in the water using your new gear soon! ☐

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Beauty and the Beast? Diver holds a Puget Sound king crab taken in 70 feet of water while diving near Fort Bragg's Russian Gulch. Photo by Tom Minch of Grass Valley, California. ▼



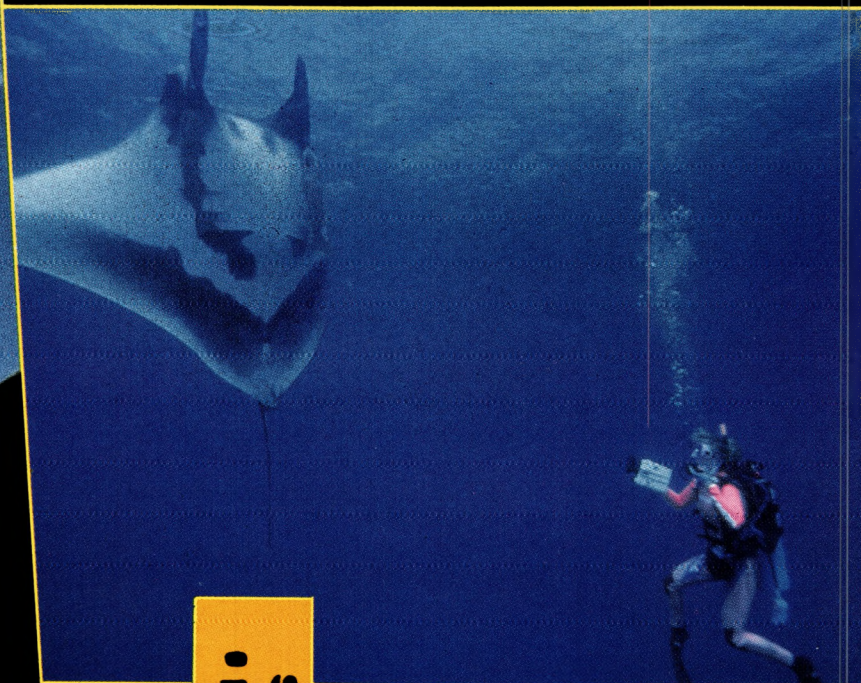
▲ *A pair of clownfish among the anemones on Osprey Reef in the north Coral Sea. Photo by Dan Butler of Honolulu, Hawaii.*



An awesome sight! Pam Lefon videotapes a majestic manta ray in the waters off La Paz, Baja California. Photo by Lee Sams of Seal Beach, California. ▼



▲ *Here he comes! Diver is caught in mid-air as he giant strides into the glassy water at the Channel Islands. Photo by Glenn Pollack of Oakland, California.*



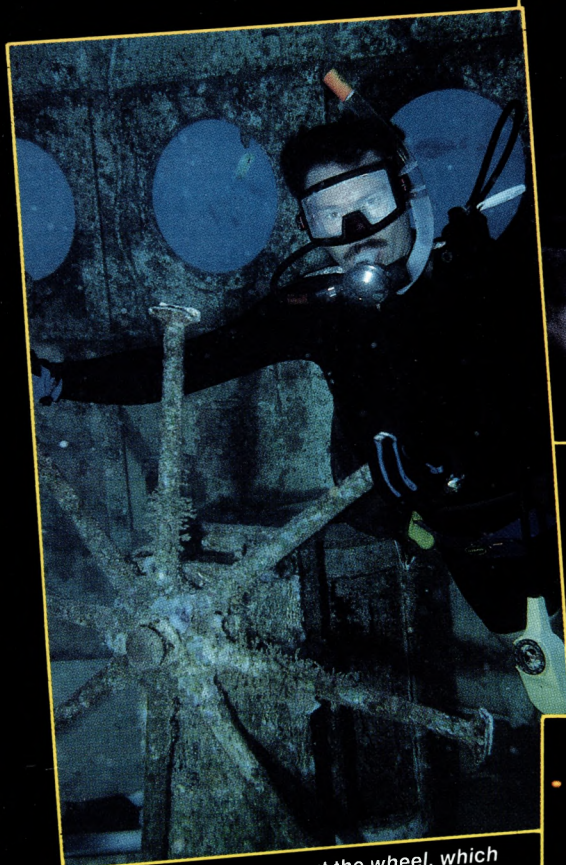
you've taken photographs that you feel represent the diving lifestyle, and you'd like to share them with other divers, we invite you to submit them to PACIFIC DIVER for possible publication.

DIVING

Large lingcod nests among the rocks in Barclay Sound, British Columbia. Photo by Dianne Rodgers of Bainbridge Island, Washington. ►



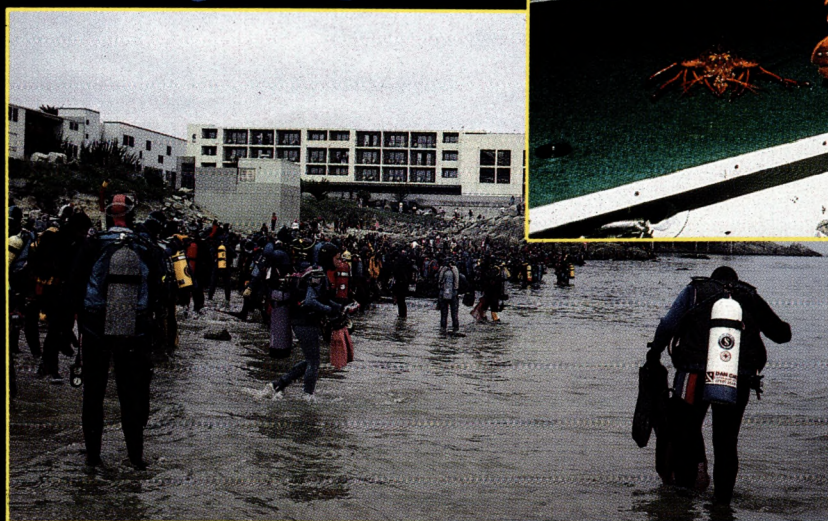
PICTORIAL



► Frank Doering checks out the wheel, which still works, of Hawaii's newest wreck, Navy Oiler YO257, off the coast of Oahu. Photo by Derik Crotts of Wahiawa, Hawaii.



► Captain Robbie Church of the dive boat Vision wearing his catch, weighing 14, 10 and eight pounds. Photo by Jim Knowlton of Santa Barbara, California.



Hundreds of divers looking to bag their limits of chocolate abs at Monterey's recent Chocolate Abalone Dive, sponsored each year by Aquarius Dive Shop. Photo by Dennis Wade of Nevada City, ► California.

If your photo is selected, it will appear on these pages with a photo credit (\$25 will be awarded for selected photographs). To have your photos considered for publication, send your color transparencies to Editor, PACIFIC DIVER Magazine, P.O. Box 6218, Huntington Beach, CA 92615, with a sentence or two describing each shot, where it was taken, and what equipment was used. Photos must be submitted with a self-addressed stamped envelope to ensure their return.

Continued

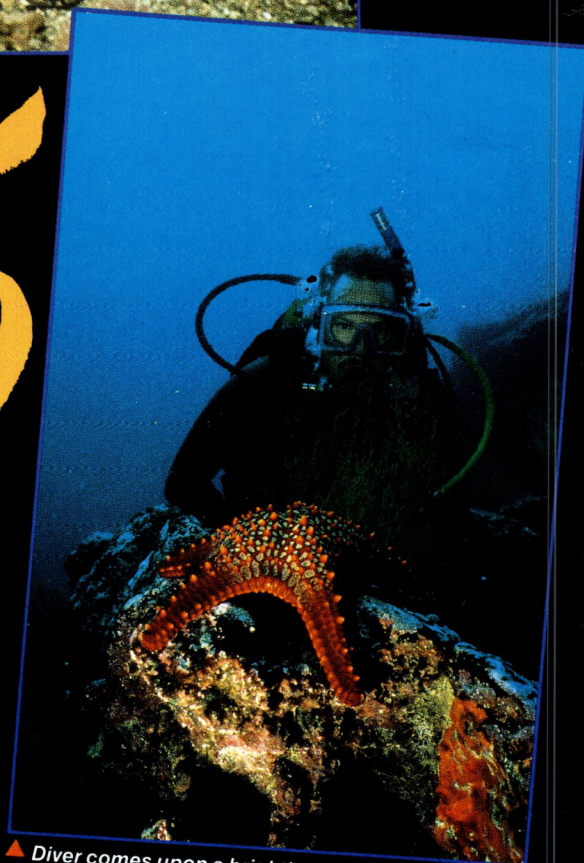
PACIFIC DIVING

Two sea anemones share a rock outcropping with a sea urchin in the waters off San Miguel Island. Photo by Ron Cleary of Huntington Beach, California. ▶



▲ Exploring a seamount wall near Isla Danzante, Baja California. Photo by John Fisher of Sunnyvale, California.

This vibrant Tealia lofotenis was captured on the very first roll of film shot by a budding underwater photographer, 16-year-old Jason Kockx of Fremont, California. ▼



▲ Diver comes upon a brightly colored starfish in the nutrient-rich waters of the Galapagos Islands, just off the coast of Ecuador. Photo by Gilbert Cruz of Pleasanton, California.

PICTORIAL



SAND DWELLERS

On your next dive, before swimming over to that rocky reef, take a few moments to explore the sand flats where there lives a variety of hardy animals surviving in a most unlikely environment.

Descending divers searching for marine animals usually head straight for the rocks. We swim from reef to reef ignoring the apparently empty sand bottom between rocky outcrops. Don't make this mistake — stop and check out the sediments. The organisms living there cope with a surprisingly difficult environment. Unlike their rock-bound relatives, sand bottom dwellers suffer with unsure footing, the problems of separating food from the surrounding grit and the risk of leaving telltale tracks. But, as we shall see, their survival adaptations are equal to the tasks.

Sand Dollars: Standing on Edge to Catch the Current

Almost every visitor to a sandy bottom has come across fields of sand dollars. These dark brown echinoderms tend to cluster in aggregations, sometimes reaching densities of 500 individuals per square meter off Southern California. Sand dollars in shallow water will sometimes stand on edge crosswise to the current flow. Biologists are unsure of the reasons for this behavior, but suspect each animal uses the flow eddies created by its raised body to collect bits of food in its lee. It periodically falls onto the small accumulated heap and consumes it through a mouth on the underside.

Sand dollars also feed by generating mucus in glands on top of their bodies. The mucus is driven across the top surface by the beating of tiny cilia, bends around

the edge, and approaches the mouth along tiny branching tracts on the underside. Particles of food stick to this mucus and are swept into the mouth.

The life of sand dollars would seem to be uncomplicated, but predators can disrupt their day. Pitch a big pink sea star into their midst and watch what happens. Within moments the sand dollar colony will submerge in panic, burying themselves by coordinated motions of the velvety spines that cover their bodies. The smell of the predatory sea star will trigger this behavior for about four feet in all directions. The sand dollars warily re-emerge when the sea star moves on.

Beware of Heart Urchins, be Careful with Brittle Stars

Careful observers in deeper water will sometimes see the long, delicate spines of the heart urchin (genus *Lovenia*) projecting from the sand. Careful excavation will reveal an off-white, streamlined, plum-sized urchin sporting a few very long backward pointing spines. Don't fool with the long spines — they contain a toxic substance that can cause a painful wound. Heart urchins have been observed in sandy bottoms to 140 meters (460 feet) from the Channel Islands to Panama. They live just below the surface in holes lined with mucus connected to the surface by a shaft of water. Very long tube-feet extend from this shaft across the sandy surface to sweep food particles down to the

waiting mouth. When an area is cleaned of goodies, the urchin bulldozes its way to another spot, raises a new shaft, and begins to feed again. The toxic spines sticking out of the hole discourage uninvited guests.

A search at the base of rocks will often turn up a few brittle stars. As the common name suggests, their snake-like arms will snap off if grabbed by an enthusiastic predator. This strategy may seem wasteful, but in this way the animal lives — after all, arms can be regenerated but whole animals can't.

Brittle stars are surprisingly active for an echinoderm. They wave their arms around, sniffing and probing crevices with the sensitive tips in their search for food. The brittle star will transport a discovered morsel to the mouth by curling the arm inward or by transporting it using a bucket-brigade movement of tube-feet on the arm's underside. West Coast brittle stars are often beautiful animals with bright colors and stripes.

Now Ladies and Gentlemen, It's the Exploding Cucumber!

My favorite sand dweller, and the bane of many a neophyte diver, is the famous sea cucumber of genus *Parastichopus*. It's warty like a cucumber and about the same size and shape, but the color's wrong — a brownish tan. These hearty fellows are usually found on the sand near rocks to depths of about 30 meters (100 feet). They creep along the bottom jabbing sticky palps into the substrate to collect edible bits.

Their claim to fame lies in their seemingly suicidal mechanism of defense — when disturbed they explode! If roughed up by a predator (or inexperienced diver), a sea cucumber will quickly inflate from a flaccid tube to a rigid cylinder that resists biting or tearing. If the attack continues the animal will blow most of its viscera from its anus in a cloud of glop that resembles chinese egg-flower soup. The ejected material is extraordinarily sticky. It can suffocate an attacking fish by clinging to its gills, entangle inquisitive crabs, or leave a disgusting semi-permanent mess on a wetsuit.

Continued

Sea Cucumber
Parastichopus californicus
— tentacles extended

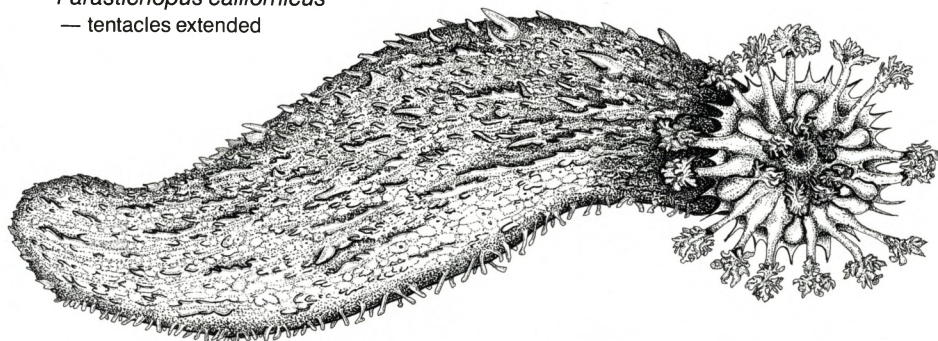


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Because there's a few seconds delay between the rigid phase and the evisceration — the precise time varies with the animal's size and water temperature — you can hassle a cuke then hand it to your buddy for some excitement. I know; it happened to me once.

"But," you may ask, "how is an explosion a defense?" Well, not all the animal's insides actually end up on the outside. Within about six weeks the cucumber can regenerate its guts from food reserves held along the inside of its body wall. Then it's back to business as usual gleaning the sandy floor.

And Would you Believe a Sea Sweet Potato?

A less hysterical relative is the sea cucumber of genus *Caudina*, the aptly named "sea sweet potato." Smaller, thicker, smoother, nonexplosive and much less conspicuous, these slow-moving sediment eaters lie buried in the muck with only their posterior-mounted breathing structures above the sand. We always bag at least one of these in bottom dredges taken off Orange County, and research divers report fairly even distributions on uninterrupted sandy bottoms from Palos Verdes to below the border. They move slowly, eating the sand around them and digesting whatever food it contains.

Mollusks and Arthropods Share the Sand Bottom

All the animals discussed so far are echinoderms, relatives of the familiar sea stars. Mollusks and arthropods get into the sandy bottom act, too. At least three species of the abundant cockle *Chione* are routinely seen by Pacific divers. These clams rest just beneath the sand surface where they make their living by filtering water and extracting bits of food. Elaborate structures within the clams separate edible from non-edible morsels, sending each to the proper place. If danger threatens they stab a foot into the sand, partially inflate it to form an anchor, and pull themselves deeper. You'll need to look carefully to discover these animals, but it may be worth the effort — they make a delicious chowder.

Much more obvious, especially at night, are the scampering *Olivella*, abundant little snails with polished purple shells. *Olivella* were valuable to aboriginal Californians who used their attractive shells as money. The snails leave a distinctive plowed track as they move around just beneath the sand surface. They appear to be omnivorous, willing to consume just about any target of opportunity. "Scampering" may not seem an apt adjective for a snail, but when being pursued by a sea star or other predators, *Olivella* can move

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at a rate of about four body lengths per minute. Follow one of these plowed trails to its end and dig for the jewel-like snail.

Though digging through snail tracks is okay, exploring miniature undersea volcanoes is to be avoided. The resident mantis shrimp (genus *Hemisquilla*) can easily — and instantly — remove the tip of your finger. These impressive and colorful beasts grow to a foot in length and live in neat meter-deep burrows surrounded by a ring of excavated material giving the appearance of tiny seabed cinder cones. A mantis shrimp's folded "Z"-shaped mouthparts can swing out rapidly to deliver a shattering or piercing blow. Mantis shrimp have been known to use these appendages — which resemble the forelimbs of a praying mantis — to crack double-safety aquarium glass! This kind of smashing appendage is just the ticket for an animal that eats snails and clams.

Divers are most likely to encounter *Hemisquilla* during the spring-summer mating season when males are out of their burrows and on the prowl for receptive females. They make a low-pitched thumping or booming noise that the females presumably find irresistible.

Last but Not Least, Sand Crabs and Others...

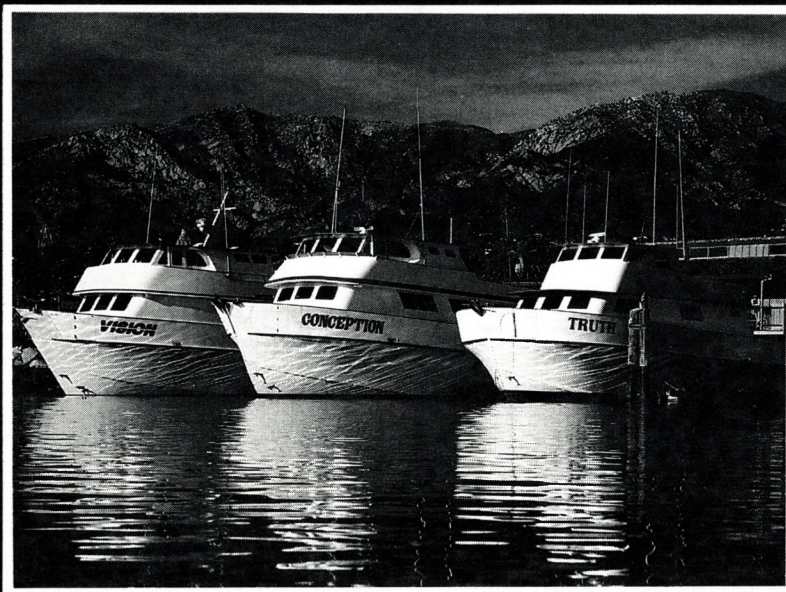
Many other soft-bottom-dwellers deserve mention. Graceful stands of *Pachycerianthus*, a relative of the sea anemone, can be seen waving in the currents, each colorful individual emerging from a slick black tube into which it can withdraw in an instant if surprised. The tentacles of some of these animals fluoresce in bright light. (Try flashing your diving light onto a stand of these anemones, then turn the light off to watch them glow.)

The giant sand crab *Blepharipoda*, found off sandy beaches and looking like a refugee from some over-budget Spielberg spectacular, is a resident more commonly seen at night than in the daylight. And don't forget the hundreds of animals so small that only a hand lens will reveal their beauty and variety. There are many things to see on (and in) that sandy bottom stage you thought was so dull.

That's the great thing about this sport... the more you know about the actors, the more enjoyable the play. ☐

Dr. Tom Garrison heads the Marine Science Department at Orange Coast College, the largest undergraduate teaching department for marine science in the U.S. He holds national awards for teaching excellence from the Marine Technology Society and the Salgo-Noren Foundation, coauthored the PBS series Oceanus, and is the author of a new text in general oceanography soon to be published by Wadsworth.

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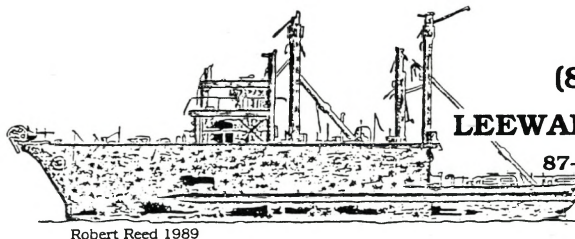
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Biting the Hand that Feeds

By "Baja John" Francis

O kay, I feel bad. I shouldn't have shot that damselfish out at Isla Isabella. It was a crime of frustration, and I don't plan to repeat it, *but good God a guy can get hungry out here!*

I'd been diving nearly every day since returning to the Baja Peninsula and now I was wandering the waters near La Paz and my cupboards were bare. It's not that there aren't fish around here. The Sea of Cortez, after all, has one of the highest concentrations of fish in the Pacific. It's just that none of them seem to want to impale themselves on my pole spear.

That's right. This is another column about hunting. But don't get the wrong idea; I'm really not a bloodthirsty killer. As a matter of fact, I haven't killed *anything* yet, if you don't count that hapless damselfish which I'd like to forget about. Except for that one moment of overpowering frustration, I've never shot at anything I wasn't sure I could, and would, eat.

Still, you probably are holding that against me. I can almost hear you right now saying to your spouse, "I'm *glad* that S.O.B. can't shoot anything. If all he can see in that underwater beauty is a lot of targets, it serves him right to be coming up empty! By the way, honey, what's for dinner?"

But see, that's just the point. When you're on a small boat with no refrigeration and no Safeway in sight, "What's for dinner?" is a question that is constantly looming along the edges of your psyche. You may call it bloodthirst; I call it fear of emaciation.

Of course, I can always fish by trolling. All I need to do is hang a lure — practically any kind of lure — off the back of my boat and I'd probably snag a big edible fish. But what I'm likely to catch is a 20-pound dorado or tuna, which are excellent eating, but without refrigeration 19 of the 20 pounds would surely be wasted.

Besides, I figure trolling is less sporting than spearfishing. When you dive for fish you at least enter the fish's environment and challenge it on its own turf, so to speak. On the other hand, no hungry fish

seems able to resist the instinct to strike at the right lure. To me, spearfishing is like a Dodge City showdown at high noon; trolling, however, is like a drive-by shooting.

No, if I'm going to have to kill to eat I'd just as soon take only what I need, and I'd rather give the fish a sporting chance, *mano a mano* as it were.

The trouble is, on a level playing field I seem to lose every game. So I decided to act the way man has always acted when the sword has failed to solve his problems. I got a bigger sword.

Yes, I figured it was about time to trade in my old pole spear for a speargun. Fortunately, La Paz has several dive shops and sporting goods stores so I was able to find what looked like a decent beginner's band gun at a modest price. (Rubber-powered spearguns are legal in Mexico but gas-powered guns are not.)

As it turned out, I traded up in weaponry none too soon, because shortly afterward I got word that the Chief, the Writer of Checks, the Editor himself (or Master, as he prefers to be called) had decided to come down to pay me a visit. And while he was down here, I was expected to feed him — no small task, let me tell you. So I figured with a brand new speargun I'd be able to start actually catching some of those big fish I'd been bragging to him about.

The Chief was determined to make a dive at Los Islotes while he was here. Los Islotes is a small islet about 25 miles north of La Paz and the home of a large sea lion colony. This sounded okay to me, because I knew there were a lot of fish at Los Islotes, so while the Chief was cavorting with the sea lions I figured I'd go shopping.

After we arrived at Los Islotes and dropped anchor I sat and watched in amazement as the Chief suited up. He was truly a sight to behold, what with all his high-tech digital doodads and his color-coordinated diving ensemble. Damned if it didn't make me feel like a bum in my basic black shorty and horseshoe collar. But hey, *I am a bum*, and besides, I had some hunting to do.



"Baja John."

Following the Chief into the crystal clear water I have to say I felt a little nervous carrying my new speargun among the sea lions. These are intelligent, observant creatures, and I certainly didn't want any of them to get the wrong idea. I felt like I was packing a gun to a birthday party, but as it turned out, the sea lions were as friendly and playful as ever, spinning underwater donuts around me and generally acting like dogs aching to play fetch. So I left them with the Chief and went off looking for some food-fish.

I found one, too, a big triggerfish, and believe it or not, I nabbed him. I couldn't believe how much easier it was with a speargun instead of a pole spear. Who says guns can't solve problems?

Returning to the boat with my prize, I found the Chief sitting up on deck looking a little dejected. It seems the female sea lions had wanted to play with him all right, but the big bulls, who are normally uninterested in visitors, leaped off their sun-warmed rocks and stampeded toward the Chief. Barking and blowing bubbles and snapping their teeth, they told the Chief in no uncertain terms to *Get Back!* as they herded their females away.

It seems to me that the bulls saw the Chief as a rival for their females' attentions. What had these intelligent animals sensed about the Chief? Did the same thing happen to him around other animals, I wondered aloud? Like sheep, for example?

The Chief barked something unintelligible at me, so I threw him the fish. □

"Baja John" Francis is PACIFIC DIVER's S.O.B. contributing editor, covering the sport diving scene in the Sea of Cortez.

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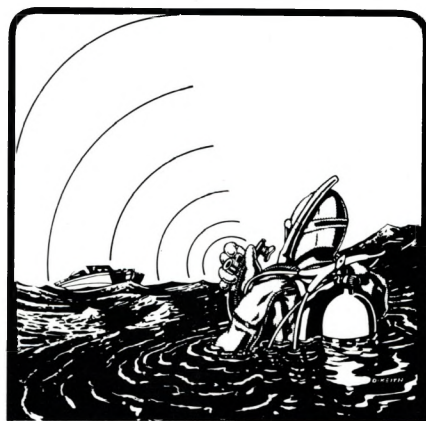
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A SOLOMON ISLANDS PHOTO MISADVENTURE

It was as if Murphy himself had stowed away on board. Everything that could go wrong, did. Even those things that couldn't go wrong — did.



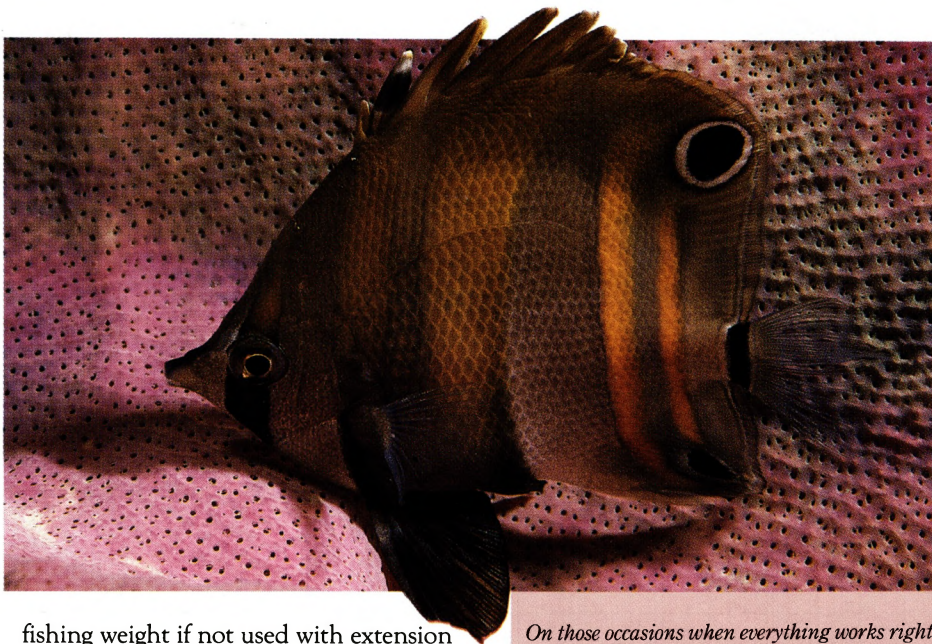
Nineteen of us went to the Solomons last March to dive aboard the *Bilikiki*. Nearly all were underwater photographers, many were old friends, and all were excellent divers. We had a great time.

It's true, however, that my Hydro 35 camera housing leaked on my first dive. But that's precisely why I always take the precaution of traveling with two Nikon cameras. Having the spare camera in my camera box (which cost a fortune and has never been used) ensured that the water damage was minimal and that my primary camera worked fine after some minor cleaning. Of course, if I had not had the spare, the housing would have undoubtedly flooded completely and my one camera would have been a total loss.

My wife, Michele, had a brand new Nikonos V. She managed to keep this dry on the inside and wet on the outside through three full dives. After her fourth dive, however, she noticed that her shutter "looked funny, sort of shiny, like it had oil on it." Seawater. She had flooded it. She said it was not her fault. Fortunately, by the time Michele surfaced from her fourth dive I had gained considerable experience repairing flooded Nikonos cameras.

I can thank Steve Larson for this experience. Steve had flooded his Nikonos on his first dive. Steve had a strobe sync cord that permitted him to connect his Nikon 8008 camera housing to two Ikelite 150 strobes and a Nikonos camera all at the same time. Unfortunately, this was the only sync cord he had and that necessitated carrying all this gear with him on every dive. This monstrous camera assembly became known as the "Battlestar Galactica." What's even more unfortunate was that when Steve bolted the Nikonos to the bracket a design flaw in the bracket caused the door of the Nikonos to lift off the O-ring. The Nikonos was full of water before Steve had brushed the bubbles off his lens.

Steve's lens stayed dry, however. That's because he had read that bit in my book that said a 35mm lens works best as a



fishing weight if not used with extension tubes. So Steve left his 35mm on board and borrowed Ferol Page's new 20mm lens, and it was Ferol's lens that got all the water inside.

Following the directions in Jim and Cathy Church's book for repairing a Nikonos V, after several hours of work Steve's camera worked fine on manual, but the TTL feature was quite dead. I probably didn't work fast enough or carefully enough when I cleaned it. But no problem; my technique improved after Steve's second dive. Since his camera was inoperative and Ferol's lens was still wet, Steve Larson borrowed Steve Mann's camera and 20mm lens and leaped into the water, and immediately flooded both camera and lens.

Chris Huss helped me clean the camera. But when we finally finished, the TTL didn't work on that one either, although some of the lights came on, which I guess can be considered some kind of improvement.

Chris and I got to where we could fix 20mm lenses almost in our sleep. Especially Chris, who had been stricken with decompression sickness so had plenty of extra time to work on the flooded cameras. Fortunately, it was not a bad case, just skin bends. He didn't seem to do anything

On those occasions when everything works right and that magical image appears, it makes all those equipment headaches seem worthwhile.

wrong; after all, Chris is an good diver. Perhaps the frustration he felt at having his 150 strobe flash three times per second every time he took it in the water precipitated the bends. Who knows?

Anyway, by the time Michele got around to flooding her camera I was an expert at fixing them. Her camera worked fine after I was through working on it. Others were not so lucky. Karrinne Bauer set a dubious record by flooding three strobes in one day! When she finally managed to find a strobe that didn't leak, she couldn't get it to work. It turned out that her camera housing was wired improperly which prevented the strobes from firing. She finally switched to a Nikonos system that her husband, Dick, modified for her with a pair of pliers. Actually, the strobe arm on the bracket was giving Dick some trouble so I suggested the use of the pliers. I certainly didn't expect him to break the bracket in half.

On this trip we had serious and not-so-serious photographers aboard. Alan Straus

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was serious. He took at least one camera with him on every dive. In his cabin and under the salon table Alan had boxes and boxes of spares. When his Nikonos V flooded, he just pulled another one out. When his strobe flooded, no problem, he had plenty more of those too.

But when Alan's air pressure gauge stuck at 900 psi while at 100 feet, contradicting his assertion that no more air would come out of his regulator no matter how hard he sucked, he swam over to Carolyn Shepherd for a bit of help. Carolyn always had plenty of extra air. Her air consumption was so low that she seemed to come back to the boat with more air than she left with. Indeed, her dive computer often indicated 6,000 psi in her tank at the end of her dive.

Carolyn also had plenty of bottom time, because the same computer that was crediting her with 6,000 psi in her tank also awarded her with limitless bottom time at all depths. Understandably, Carolyn was skeptical of her computer readings, so she planned her dives based on Alan's computer. They made a good team; he not knowing how much air he had, and she not knowing how much bottom time she had.

Saul Sarney was one of our not-so-serious photographers. He made every dive with a system he had borrowed from a friend, and he had brought no spares with him. He never seemed to tire of the anticipation he felt hoping that maybe the next time he pulled the trigger his strobe might actually flash. Of course it never did.

Greg Sindmack was also a less than serious type. However, this may have been due to his inexperience. He didn't seem to have a problem with the fact that his Canon EOS camera housing leaked a half cup of water on every dive. He just dumped it out, changed film, and dove back into the water. No big deal. The only time I saw him actually concerned was when he thought I had gone nuts. I had grabbed him by his shoulders, shoved him over a drop-off and gave him an obscene gesture trying to communicate that he would be very unhappy should he succeed in catching the lionfish he was trying to grab with his bare hands. Greg didn't know about lionfish.

But Barbara Murphy did. She claimed she stuck her hand into a den of lionfish at the insistence of her husband Larry. Barbara was feeling sorry for Larry because he had accidentally twisted all the pins out of his Nikonos camera and had flooded his 150 strobe. Since Barbara was not taking pictures, she had no equipment to damage, so she damaged herself instead. Fortunately, she had no serious reaction to

the stings, and the swelling was down by the next day.

Bob and Rita Shapiro shot Barbara's lionfish escapade with Dick and Karin's video camera. They were taking a break from still photography since Bob had flooded his new Nikonos 102 strobe. Bob didn't have time to flood anything else because he was too busy repairing the strobe. It took two days to dry and clean every part and then reassemble the whole thing. It looked great; just like a new strobe. But it never worked again.

As it turned out, there were several video cameras on board. Steve Wystrach and Janet Adams had brought a nice new V99 system and we enjoyed watching their tapes every night. Steve's tapes were especially artistic after he managed to grind a circle in his dome by extending his lens too far.

As you can probably tell, we had our share of equipment problems. Except for Darrell Anderson. Darrell had a perfect camera equipment operating record. He never lost anything, he never damaged anything. Instead, Darrell got malaria.

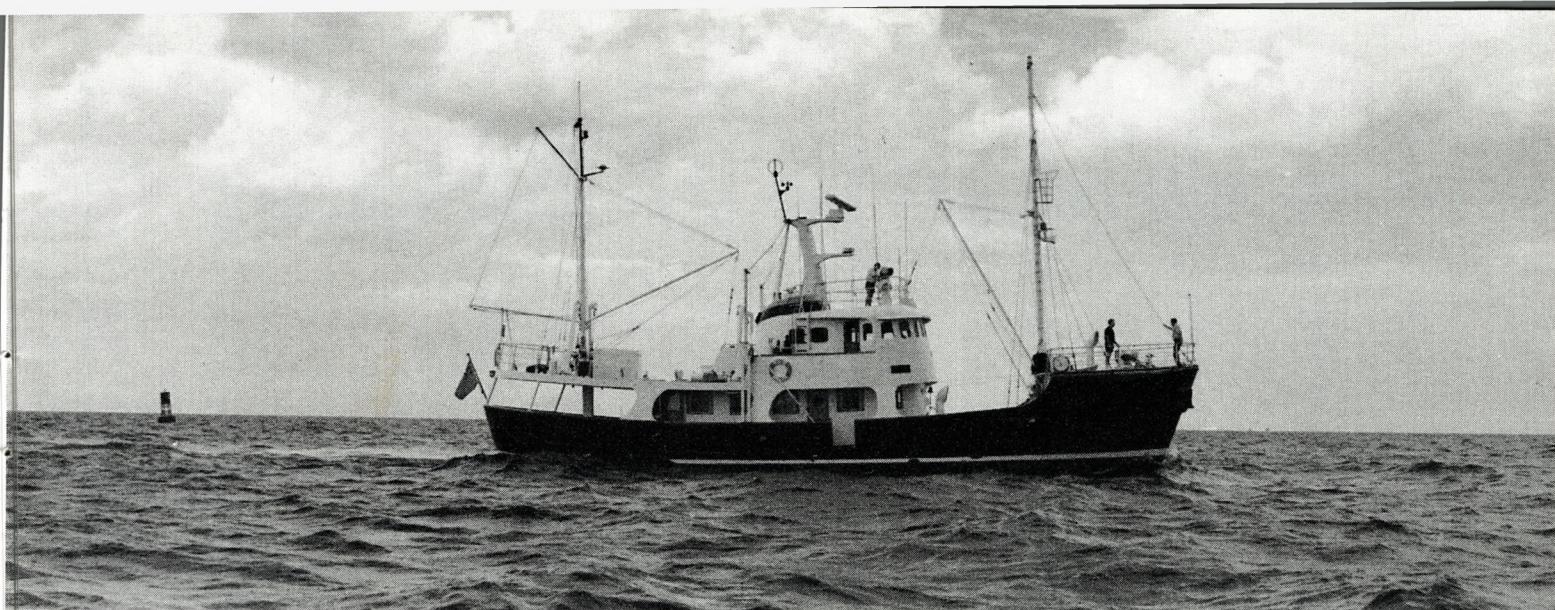
Sure, there's a drug you can take to prevent malaria, but it became available in the United States the day after we left the United States. The drug we were all taking had been ineffective against mosquitoes in the Solomons for years.

But I guess if Darrell had to get malaria, he couldn't have gotten it in a better place. The *Bilikiki* is the most comfortable boat I've ever dived from, sick or not. And the crew knew just what to do with Darrell. They had him in a clinic within hours of his first symptoms and three days later he was cured and diving with us again.

So what does this story have to do with underwater photography? Well, not much. But if you're thinking about getting hooked on taking pictures, this should give you some sense of what you might encounter in your photo-quest.

Taking pictures is sort of like playing baseball. When you come back to the boat with a camera housing that weighs a couple pounds more than it did when you began your dive (water weight), you feel like you've just struck out. But on those occasions when everything works right and that magical image comes out just like you dreamed it would, that, ladies and gentlemen, is a grand slam. □

Howard Hall is a documentary film producer and cinematographer who has won four Emmys for his underwater camera work. The author of the book "Successful Underwater Photography," Hall is currently producing a film about California marine life for the PBS series Nature.



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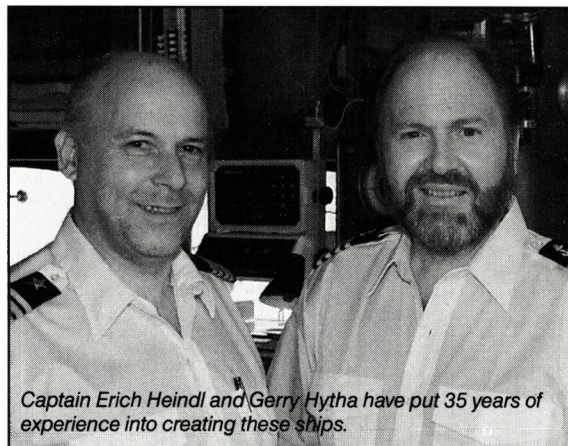
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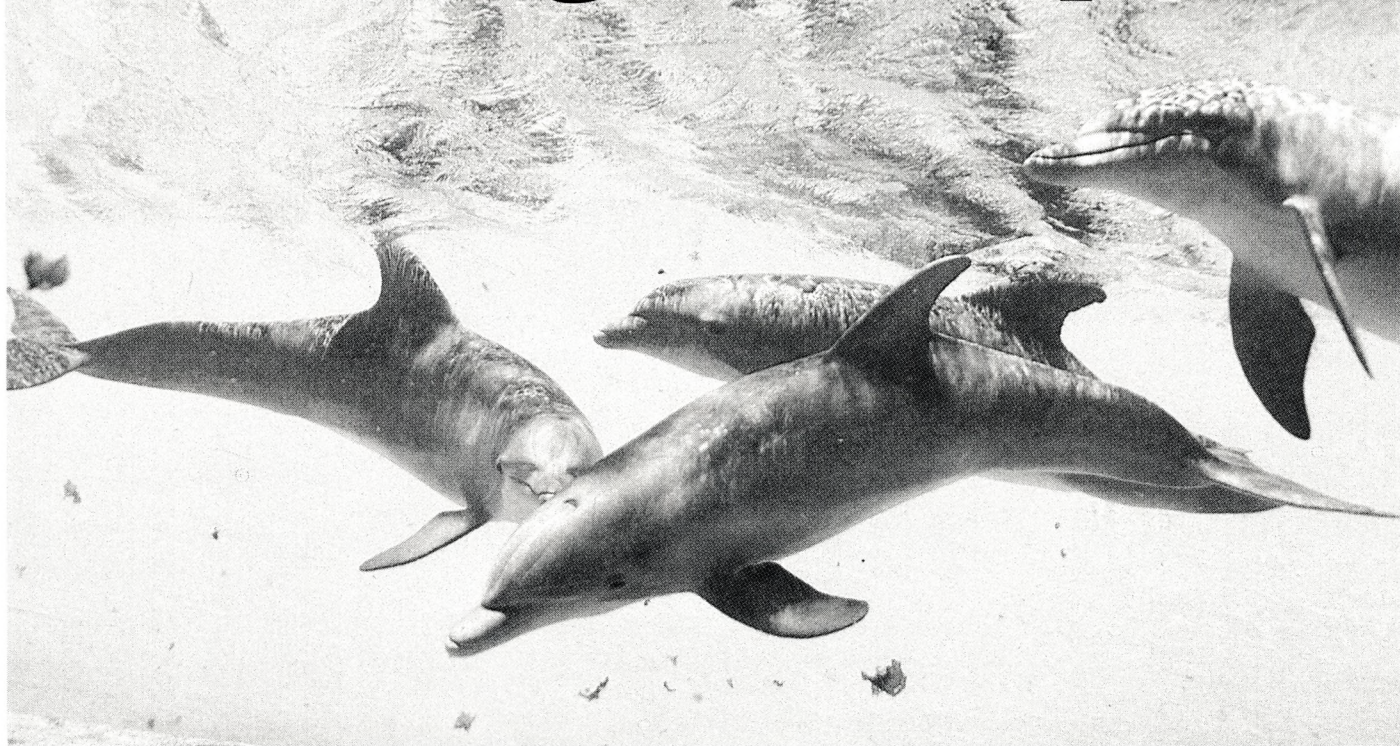


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Swimming with Dolphins



JEFFREY SMITH

Are "swim-with-dolphin" programs like Hawaii's Dolphin Quest exploitative fast-buck operations or do they play a valuable role in marine education and conservation?

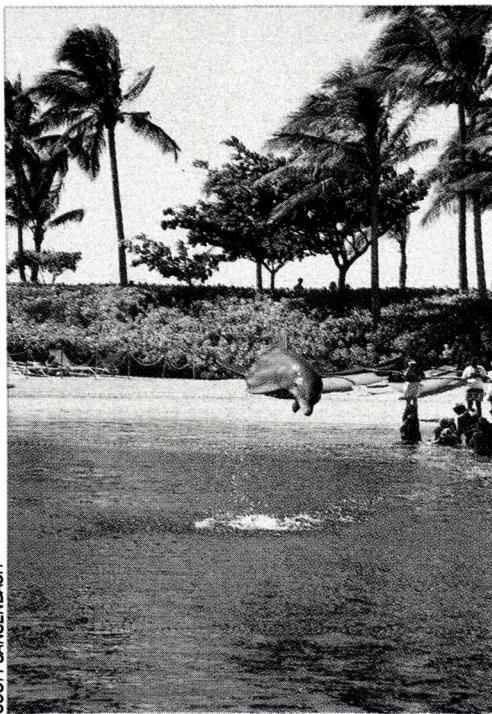
Article by Charles Scott & Christopher Sansenbach

Throughout history dolphins have captured man's imagination. In fact, the dream of communing with these magnificent animals in their own environment is what inspired many individuals to become scuba divers. However, divers soon realize that dolphin encounters in the wild are extremely rare and that most people have to end up settling for a dolphin sighting from the bow of a boat or perhaps from behind the glass of an oceanarium's fish tank.

That is, until the advent of dolphin swim programs like the one at the Hyatt Regency Waikoloa resort on the big island of Hawaii. Called Dolphin Quest, since its opening in August 1988, it has become one of the hottest water attractions in the Hawaiian Islands.

The Hyatt dolphin lagoon is a 22-foot-deep sand and lava rock pool that shallows out on a sandy beach. There's a teak dock with a gate that extends across the lagoon to separate the main body of the hotel lagoon from the dolphin pool.

This lagoon is home to six Atlantic bottlenose dolphins, *Tursiops truncatus*, which were captured in the shallow waters



SCOTT SANSENBACH

Is it right to place in captivity such intelligent animals solely for the amusement of humans?

of the northern Gulf of Mexico. This particular species was chosen for use in dolphin swim programs in large part because its time in the wild is spent in shallow inshore waters, which, program coordinators reasoned, would enable the animals to transition to a life in captivity easier than free-ranging deep-water dolphins.

The four female and two male dolphins work in teams of four while interacting with hotel guests, which gives the remaining two animals a chance to rest in a separate holding pool off limits to hotel guests. This rotation system enables Dolphin Quest to keep the dolphin/guest interaction down to one hour of human interaction per dolphin per day.

Despite the \$55 price tag, the Dolphin Quest program is so popular at the Hyatt Regency resort that participants have to be selected by lottery. Lucky winners, usually four or five guests at a time, meet on the teak dock for a preliminary lecture by the dolphin trainers. There they are presented with the rules regarding the handling of the dolphins as well as some biological and anatomical information about the species.

After the lecture participants are led to

the sandy beach area where they don masks and life jackets and quietly enter the water. Then for 10 to 12 minutes they get to float along on the surface among the frolicking dolphins, after which they are given some literature recapping the lecture as well as the opportunity to purchase photographs or a video of the encounter.

In addition to the adult program Dolphin Quest offers a program just for children where a trainer accompanies each group into the shallow beach area where they are given a brief lecture on dolphin biology and then given the opportunity to feed and pet the dolphins. Judging from the looks on the children's faces, it is truly a memorable experience.

In spite of the obvious enjoyment of the participants, children and adults alike, Dolphin Quest's Hawaii dolphin swim program, and in fact dolphin swim programs the world over, are steeped in controversy. The concerns voiced by various environmental groups have prompted the NMFS (National Marine Fisheries Service, which licenses the lagoons and the dolphin swim programs) to conduct a review of the entire dolphin swim industry to determine whether or not permits should be issued for additional dolphin swim programs, and in fact whether the existing dolphin swim programs should be allowed to continue.

Critics of the dolphin swim programs question whether it's appropriate to use dolphins in non-research-oriented for-profit situations. They fear that the popularity of these swim programs will result in an increased demand for the capture of dolphins, which will create stress on our wild bottlenose dolphin populations.

Critics also claim that these programs present the risk of injury and/or disease transmission between the human participants and the dolphins. They point to studies which indicate stress and increased mortality rates for captive dolphins, cite several incidents in which swim program participants suffered minor injuries from their contact with dolphins, and raise the issue of the two Dolphin Quest dolphins that died after eating ciguatera-tainted fish from the Hyatt Lagoon (ciguatera is a toxin that occurs naturally in certain tropical fish). Critics fear that as these dolphins die, swim program operators will simply go out and capture more dolphins to replace them.

Finally, many people are opposed to the dolphin swim programs simply on moral grounds. Is it right, they ask, to place in captivity such highly developed and intelligent animals solely for the amusement of humans?

But Dolphin Quest officials take excep-

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LIGHT YEARS AHEAD

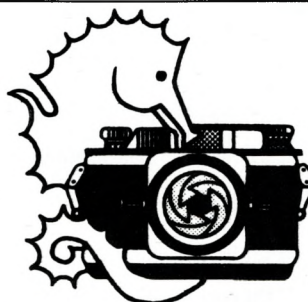
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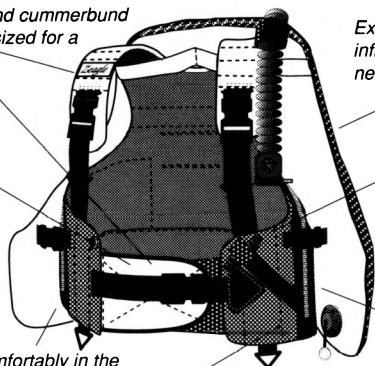


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tion to the assertion that dolphin encounters are purely for amusement. Company spokesmen have stated that "Hyatt and Dolphin Quest are thoroughly convinced that close personal contact with obviously curious, intelligent and gentle dolphins inspires human participants to become more actively involved in conservation and protection efforts."

Dolphin Quest also claims to use some of the profits earned by its swim program to fund dolphin research projects, including devising less-dolphin-destructive methods of fishing for tuna, projects for diagnosing and treating ciguatera poisoning, and a program to establish a marine life refuge on the north shore of the Hawaiian island of Kauai.

Dolphin Quest officials argue that the interactive and participatory nature of its educational programs makes the dolphin swim programs more meaningful and effective. They emphasize that the education of the public and especially children is critical to further the cause of marine conservation, and that the Dolphin Quest program plays a unique and valuable role in these efforts.

Be that as it may, NMFS recently decided to allow the current dolphin swim programs to continue only until December 31, 1991, and only with new guidelines to ensure both human and dolphin safety. Between now and then no new dolphin swim program licenses will be issued, and no additional dolphins may be captured, not even for the existing programs. In the meantime, NMFS will conduct research to compare the stress and mortality levels of dolphins in swim programs with those of dolphins in more conventional public display programs to determine the long-term future of dolphin swim programs in this country. (It should be noted that the NMFS is the same government body that has determined that 25,000 dolphins killed by the U.S. tuna fleet each year is an "acceptable" number, and the same government body that has repeatedly refused to exercise its power to impose meaningful sanctions against countries that have violated international whaling agreements and that have otherwise damaged the marine environment.)

There is no doubt that these dolphin swim programs offer the public a unique opportunity to have personal contact with dolphins in a very intimate setting. Whether or not this is morally correct is up for debate. Ultimately, it is up to the individual to decide whether or not he or she wants to participate. □

Charles Scott and Chris Sansenbach are freelance writers living in Anaheim, California.

SEALS JUST WANT TO HAVE FUN

By Wanda & Steve Bullard, Fountain Valley, California

I had started out just wanting an underwater photograph of a carved pumpkin that I could enter into a contest. But before it was all over I was minus a dive mask and out 60 bucks, but I did get some incredible shots of a pumpkin head and a playful seal named Sammy.

Six months before the pumpkin episode my buddy David and I were diving off Crest Street in Laguna Beach. We had dived this spot many times before without anything spectacular happening. But this time, as I swam up ahead of David to get a photograph of him with the sun casting its rays into the kelp behind him, suddenly David felt something very large bump him from behind. Now we all know that no matter how long we've been diving, if something large and heavy bumps into you and you cannot see it, your first thought is probably, "Will my leg go next?"

David was no exception. Just as this thought entered his mind he felt another bump followed by a push against his head. He turned just in time to see the black mass swimming toward me.

As my eyes adjusted to looking through the lens of my camera the black bullet

barreled toward me. In that instant I realized it was a harbor seal. So I positioned myself in his path and opened my arms wide, as if to hug a family member. And just as a family member would, the harbor seal came into my arms. He placed his flippers in my hands and brought his nose to my mask, as if to see my face better, and as he stared into my eyes I knew I had made a friend.

We named him Sammy because he had a large "S" pattern on his lower belly. We played with Sammy for the next half hour.

THE LAST PICTURE OF THE DAY WAS OF SAMMY SWIMMING AWAY WITH MY \$60 MASK.

I was able to get pictures of Sammy pulling at our fins and whipping around us like an attention-starved puppy.

In the following weeks I encountered Sammy every time I went diving off Crest Street. He became like a pet to me and reacted as any other pet would to a faithful friend.

So there I was back at Crest Street last October. The day was just like any other California day after a good Santa Ana wind. The skies were crystal clear, water visibility was a good 25 feet, and I had carved a great-looking pumpkin with which to capture an award-winning underwater photograph.

It took me 15 minutes to find the perfect backdrop. I set the pumpkin down and placed the extra diving mask I had brought as a prop on the pumpkin's head.

It looked great. I swam back a little and poised my camera. Then out of the corner of my eye I caught something dive-bombing me from the surface. Sure enough, it was Sammy.

Sammy swam straight over to the pumpkin as if to say, "Hey, what's this?"

He nudged the pumpkin with his nose which made it tilt to the left. I swam back over and shooed Sammy away and straightened the pumpkin, then found my

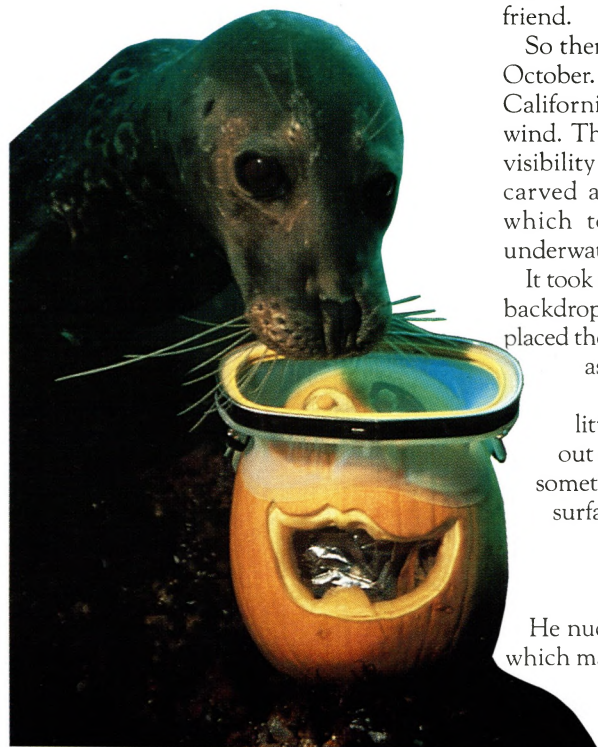
position again and poised my camera. I was just about to snap the shutter when Sammy decided to try to pull the mask off the pumpkin. It occurred to me that he wanted to play with the mask, not the pumpkin. So I thought to myself, Okay, I'll let him play with it for awhile and then maybe he'll let me get my pictures before my air runs out.

I took the mask off the pumpkin and offered it to Sammy as I would offer a rubber ball to a dog. He took the mask from my hands and whipped it back and forth in his mouth. Then he stopped, looked at me crookedly, and started moving slowly but deliberately away from me. He had moved off about five feet when I decided that perhaps I should follow him so as to keep an eye on my mask. But as I got closer, Sammy swam faster. He put 10 feet between us, so I speeded up to close the distance, but as I did so, Sammy just shot out of sight. As it turned out, I had just enough time to get the last picture of the day: Sammy swimming away with my \$60 mask in his mouth.

Great, just great, I thought. My wife Patsy is going to kill me for losing another mask. I thought about how stupid it was going to sound when I explained to her that I had given it to a seal to play with. But you had to be there.

Minutes later, as I was packing up everything to return to the surface, Sammy the Bandit showed up. Without the mask. Where's my mask? I thought. Sammy just looked at me with those puppy dog eyes as if to say, "But Steve, you gave it to me." Perhaps like a dog, Sammy went and buried it for future use. I don't know. I only know that when I got my developed pictures back, I had some astounding photographs of a friendly and lovable harbor seal named Sammy — who owes me a mask. □

Do you have something in your logbook that you'd like to share with other divers? If so, send it to LOGBOOK, c/o PACIFIC DIVER, P.O. Box 6218, Huntington Beach, CA 92615. A self-addressed, stamped envelope must be included to ensure the return of any photographs. A \$25 award will be given for any stories selected for publication.



CATCH 'EM

PACIFIC DIVER'S COMPLETE GUIDE TO LOBSTER HUNTING

ARTICLE BY SCOTT SANSENBACH

ILLUSTRATIONS BY DAVE LYONS

In the summer of 1943, while the world was engulfed in the greatest military conflict of all time, a French naval officer named Cousteau took a dip in the sea off the French Riviera to test a new underwater breathing apparatus. As we all know, the invention was a huge success, and life hasn't been the same for lobsters ever since.

Lobsters have the dubious distinction of being fun to catch, easy to clean and cook and incredibly delicious, all of which make them natural targets for seafood-crazed scuba divers. Consequently, the arrival of lobster season each October has become a monumental annual event among Pacific divers. Fishing license sales surge; dive shops stock up on caliper-type gauges, dive lights and game bags; charter dive boats sell out their opening night trips to the happy hunting grounds; and an irrational mania grips divers which has come to be known as "Bug Fever."

Lobster hunting, in theory at least, is simple. You just jump in the water, find yourself a good reef and stuff legal-sized lobsters into your game bag until you have your limit.

For some lobster hunters, it is just that easy. Having learned a few tricks of the hunt, they are not only able to consistently max out on their lobster limits, but they also seem to be able to come up with a few monster bugs in the process. But for many neophyte lobster hunters, getting a limit — or just a couple legal-sized bugs, for that matter — can be a frustrating ambition.

For those of you who have dreams of succulent lobster tails decorating your dinner table, we have picked the brains of some very successful lobster hunters as well as a few scientists and the California Department of Fish & Game to compile a guide that we hope will help you in your pursuit of the California spiny lobster.

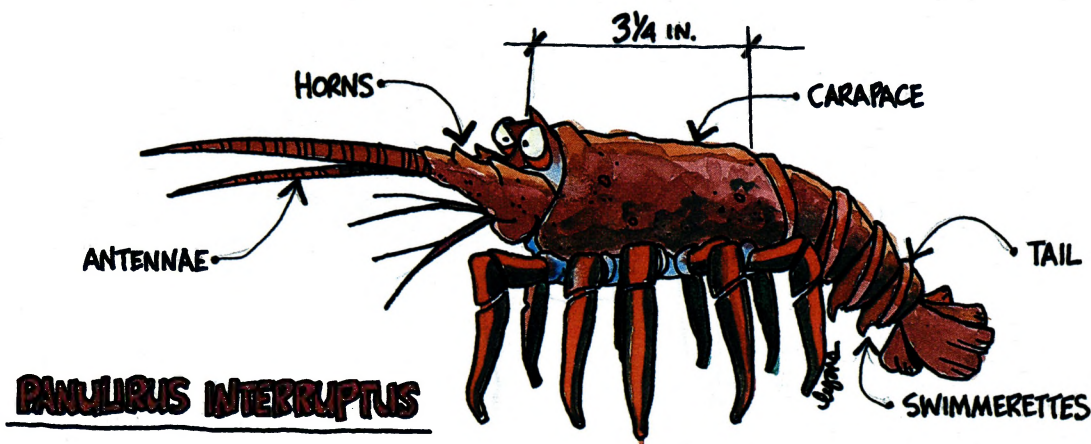
WHAT ARE THESE THINGS ANYWAY?

The first step in any successful hunting operation is to get to know your quarry. The California spiny lobster, or *Panulirus interruptus*, is the only lobster species found on the west coast of the U.S. Spiny lobsters are warm water creatures whose habitat ranges from the tip of Baja California to the central coast of California. (They can also be found in the northern waters of the Sea of Cortez.) Depth-wise,

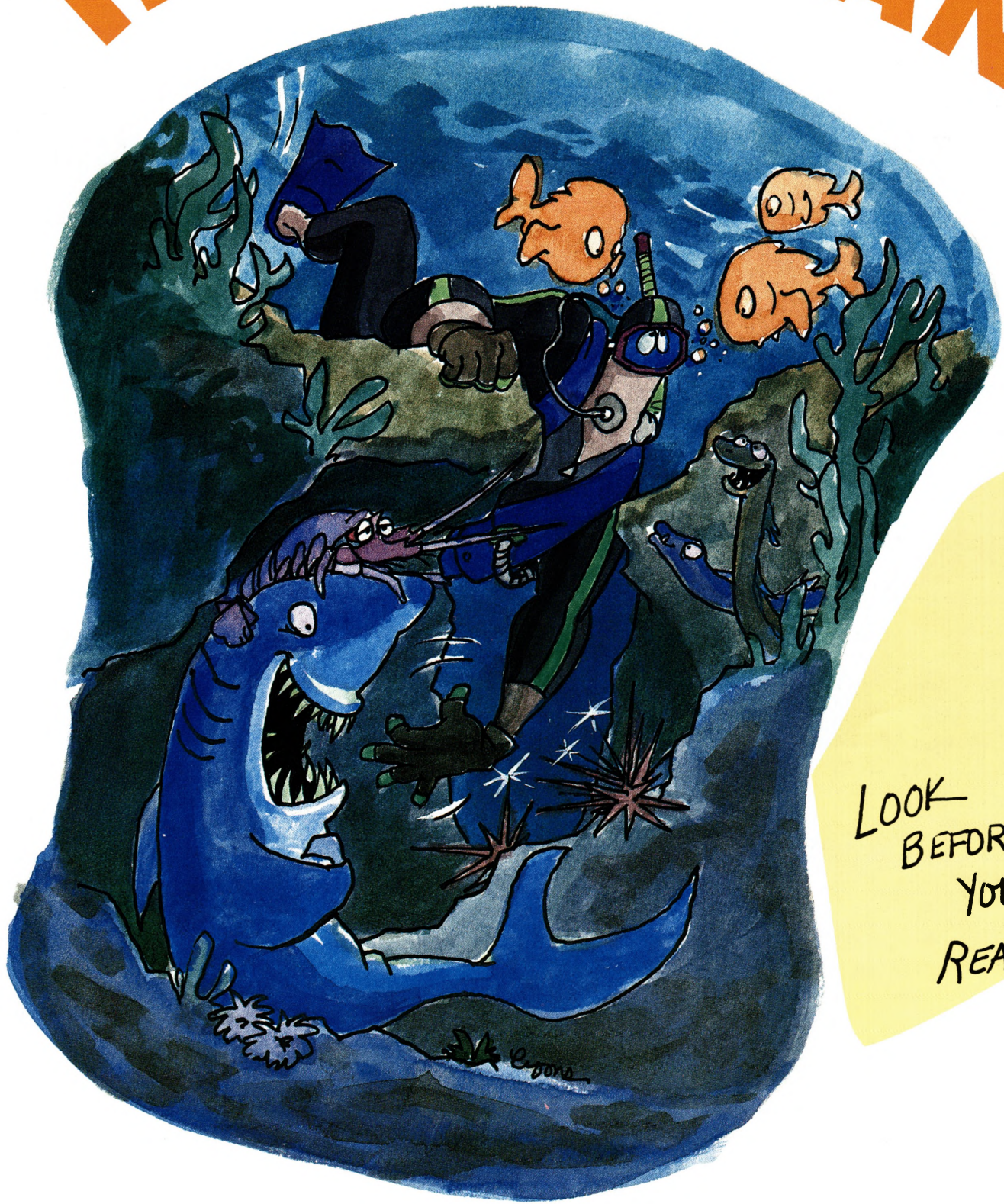
they can be found in waters as shallow as the intertidal zone to as deep as 200 feet. Lobsters favor rocky bottom areas where they can find shelter and protection in caves and crevices.

Lobsters are nocturnal creatures and spend most of the day hiding in holes. At night they emerge from their hiding places and wander the tops of reefs, through eel grass beds and over the sand flats in search of small mollusks, sand dollars, or any decaying plant or animal materials they can feed on. It is during these nighttime forages that they are most vulnerable to predation.

However, while they don't have large claws like their Maine cousins, California spiny lobsters do have methods of defense. For example, the animal's entire body, including antennae, is covered with sharp, forward-facing spines. Since lobsters typically sit in their holes facing outward, any potential attacker has to deal with a face full of spines. In addition to the body spines, each plate on a lobster tail ends in a very sharp spine. These tail spines can be driven into an attacker when the lobster flexes its tail.



IF YOU CAN!



LOOK
BEFORE
YOU
REACH

If a lobster is threatened in a hole it will often use its spines and legs to wedge itself against the attacker. Large lobsters are particularly adept at this; it can be quite a battle to dislodge them. If caught out in

the open, a lobster can snap its powerful tail and rocket backward through the water at amazing speeds.

Finally, if a predator should get a hold of a lobster by its antennae or legs, the

lobster will simply break off the captured body part and escape. Like starfish and some reptiles, lobsters have the ability to regenerate lost body parts. Some texts claim that lobsters that have lost all 10 legs

SIX VETERAN BUG HUNTERS OFFER THEIR OWN TIPS & TECHNIQUES

The following section profiles six expert lobster hunters. Each hunter's strategy and preferences are somewhat different, so taken together they represent a cross-section of approaches, and show that there is no *right* way to be successful at lobster hunting.

Seamus Callaghan Downey, CA

An avid spearfisherman, come October Seamus turns to bug hunting. Diving off the beach as well as on charter and private boats, in 1988 Seamus won the *Wild Wave's* contest for the largest lobster with a 12½-pounder.

Favorite Spot: Hunting by day at San Nicolas Island aboard charter boats.

Equipment: Seamus has streamlined his equipment by eliminating the use of a BC.



Seamus Callaghan, right, master bug hunter.

He wears neoprene gauntlet gloves with the fingers cut off beneath a pair of Winter Tuf Duks work gloves. He uses an extra large all-mesh game bag.

Hunting Techniques: Seamus prefers hunting alone. If he's diving aboard a charter boat he tries to be one of the first divers in the water and quickly heads to remote spots. Seamus has been known to actually pass up lobsters near the boat in order to be the first to cover a promising area farther away.

While stalking, he stays about 15 to 20 feet above the reef. If he sees a lobster or a promising area, then he will drop down to check it out.

When night diving, Seamus likes to search along the sand near the base of reefs. He stays as high as visibility and the strength of his light beam will allow. He normally shines his light in an arc over the

bottom; when he spots a bug he diverts the light beam from the quarry and swoops down for the grab.

When faced with a lobster in a hole, Seamus tries to anticipate lobster movement. Wiggling his fingers in front of the lobster, when the antennae come together he grabs for the horns. If he misses the horns and winds up with only a handful of antennae, he will try to twist along with the movements of the lobster to prevent the antennae from breaking off.

When a lobster is spotted on open ground, Seamus moves in and grabs hold of its back, and then presses the animal against the bottom with its tail outstretched, pinning it. In this position the lobster is unable to flap its tail and Seamus has a free hand to position his game bag.

Kevin Harter Anaheim, CA

About 80 percent of Kevin's lobster hunting is done from the beach. A couple of seasons ago Kevin caught a seven-pound lobster in five feet of water at Laguna Beach's Boat Canyon.

Favorite Spots: South Laguna from Cleo Street to Moss Street, and the front side of Catalina at night. He feels the best time to hunt is from 11 p.m. to 2 a.m. when there is little or no moon out.

Equipment: Kevin prefers a low-profile back-inflation-style BC. His idea of a good game bag is a half-canvas, half-mesh bag



Kevin Harter is a proponent of buddy bug diving.

with a secure locking mechanism. For gloves he uses a basic neoprene variety

THE PENALTIES
FOR
LOBSTER
POACHING
ARE
SEVERE



and both antennae have survived to grow new limbs.

While it is difficult to determine the age of lobsters, it is estimated that an average specimen grows from one to 1½ inches a year. At this rate it takes about seven years for a lobster to attain legal minimum size. Figures on the maximum size for California lobsters vary widely. Some sources list the largest bugs at over 30 pounds, and there are authenticated reports of lobsters weighing in at 26 pounds with lengths of over two feet (that's not including antennae!)

While the odds of landing a 30-pound lobster these days are probably about the same as winning the lottery, you can take solace in the fact that *Panulirus interruptus* is the largest of all spiny lobster species found throughout the world. An average-sized California spiny lobster just tipping the legal scale usually weighs about 1½ pounds, while anything exceeding eight pounds is a real prize. Even so, every season a few hardy lobster divers land "toads" (bug diver slang for real big lobsters) that weigh up to 15 pounds.

THE RULES OF A LOBSTER HUNT

Fish & Game regulations are designed to ensure that there will always be a supply of lobsters to frustrate and make fools of future generations of bug divers. So learn the rules, and follow the rules. Poaching, besides harmfully impacting our lobster population, carries quite severe penalties.

Lobster season opens the first Wednesday in October (October 3rd this year) and closes the first Wednesday after the 15th of March. All persons 16 and older must have a valid California ocean fishing license to hunt lobsters. The minimum legal size for spiny lobsters is 3¼ inches measured in a straight line on the mid-line



of the back from the rear edge of the eye socket to the rear edge of the body shell (carapace). You must use a caliper-type gauge to determine legal sizes while hunting lobster. The daily lobster bag limit is seven.

Fish & Game law says you may catch lobsters with your hands only. Law also says that undersized lobsters (called "shorts") can be brought to the surface to be measured, a rule that was designed to

and, if it's undersized, release it immediately.

Fish & Game wardens are known for their thorough knowledge of the law, and their efficiency in inspecting catches. And they are not known for giving violators a break. So unless the idea of an expensive fine, a mandatory court appearance and the possible confiscation of your diving gear appeals to you, don't take the regulations lightly.

EQUIPMENT YOU'RE GOING TO NEED

Since most bug hunting is done at night you need a powerful dive light. The greater the penetrating power of your light beam the more efficient your search will be. Equipment manufacturers often include red lenses for use in lobster diving, the theory being that lobsters cannot see the red light. While this may very well be true, most divers seem to feel that these lenses are a waste of time. The problem is that the colored lenses reduce the brightness of the light beam, making night diving annoying and somewhat claustrophobic. Plus, some lobster hunters believe that the white beam of a standard dive light actually mesmerizes lobsters, which improves your chances of a catch.

Game bags are also mandatory. Mesh bags are good because they offer the least water resistance, but lobsters tend to get snagged easily as you're stuffing them in the bag. Canvas bags, on the other hand, make it easy to stuff lobsters into them, but they're more difficult to drag through the water. A good compromise is the half and half bag (canvas at the top and mesh at the bottom), which makes bagging game easier but cuts down on water resistance.

The type of closure on the bag is another important consideration. Choose one that has a secure locking mechanism,

with synthetic leather work gloves over them.

Hunting Techniques: A proponent of the buddy system while lobster hunting, Kevin feel that two divers can work together to spook bugs out of holes where one diver may not succeed. He feels having a buddy present also makes bagging lobsters easier.

While night beach diving Kevin spends a lot of time looking in the shallows and over the sand. During the day he cruises in the 15- to 30-foot depth range. Shallow diving enables him to conserve his air and spend more time in the water. He generally stays at or near the bottom checking out all the promising holes.

When going for a lobster in a hole Kevin prefers an underhand grab. He aims for the horns or legs and brings his other hand in if he gets a hold. Sometimes a lobster manages to wedge itself in the hole very tightly. In this situation Kevin recommends a twisting and pulling motion to dislodge the bug.

When spotting a bug sitting outside its hole, Kevin will back off and circle around the lobster. Then he comes at it from above and behind.



San Nick is Sheldon's Streit's, pictured at right, favorite bug spot.

LOBSTER SEASON
OPENS
OCTOBER 3RD THIS
YEAR AND CLOSES
THE FIRST
WEDNESDAY AFTER
MARCH.

allow free divers a chance to measure close calls, but many scuba divers have misinterpreted this rule to mean they can put shorts in their game bags. But in fact, as soon as you put a short lobster in a bag, on a boat, or in any form of container, you have legally taken possession of it and are subject to a citation. The best policy is to avoid grabbing any questionable lobsters. If you aren't sure if a lobster you have grabbed is legal, measure it immediately

Sheldon Streit Los Alamitos, CA

During lobster season, Sheldon visits San Nicolas Island every Thursday as faithfully as some people go to church on Sunday. Sheldon was once cruising over a ridge in a strong current off San Nicolas when he came upon a glory hole with seven lobsters ranging in size from six pounds to 11¾ pounds.

Favorite Spot: San Nicolas during the day; Catalina at night. On occasion he'll try his luck beach diving in South Laguna.

Equipment: Sheldon doesn't use a BC

and prefers a large mesh bag with a one-handed closure mechanism and neoprene gloves with the fingertips coated in wetsuit glue.

Hunting Techniques: When night diving, he will sometimes stalk lobsters with his light off. He feels the combination of good visibility and a little moonlight provide enough light to spot bugs.

To prevent lobsters already in his game bag from crawling up toward the opening, Sheldon carries his bag with his fist closed over the mesh about halfway up, trapping the bugs toward the bottom. When he spots another bug he drops his bag immediately. This frees both hands and prevents his dangling bag from getting caught on the reef while he approaches.

During calm weather Sheldon tends to stay up higher while he stalks, since he finds that lobsters will be farther out of their holes. In rougher water he finds bugs staying closer to their holes, in which case he moves down closer to the bottom.

Sheldon emphasizes the importance of making the first move. He watches the legs of the lobster for signs that it is getting ready to bolt. He also feels that if you have a lobster that is out of reach in a hole you can usually tease it into coming out.

Once he grabs a bug, he turns it upside down to upset its equilibrium. Sheldon claims this makes the bug stop struggling. Or, he'll simply let the lobster clench down on his body, since bugs tend to feel safer if they're clinging to your leg or chest.

Jim Monaco Hollywood Hills, CA

Jim has been chasing bugs since 1972. He has bagged many in the 10-pound-plus range and his crowning achievement was a 15-pounder that was taken at San Nicolas Island in 1987.

Favorite Spots: Jim hunts exclusively during the day at San Nicolas and Santa



Jim Monaco's been chasing lobsters since 1972.



APPROACH THE LOBSTER FROM THE SIDE, AND USE YOUR LIGHT TO DRAW HIS ATTENTION FORWARD.

preferably one that can be operated with one hand. A bag that can be attached to your belt clip at some point other than at the closure is also helpful. This will enable

WHEN IT COMES TO EQUIPMENT FOR LOBSTER DIVING, THE BOTTOM LINE IS SIMPLICITY.

you to open and close the bag without having to unclip it from your belt.

There are a few game bags on the market with special lobster trap openings. While some of these designs do make it easier to bag small- to moderate-sized lobsters, they have not caught on very well among hard-core lobster divers, primarily because they don't offer as large an opening as do conventional bags. A large opening makes bagging all lobsters easier, and wouldn't it be terrible if you finally caught that 10-pounder you've always dreamed about, and then couldn't get it in your bag because the opening was too small?

The sharp spines of lobsters, urchins and the reefs themselves necessitate the use of heavy-duty gloves. There seems to be no consensus as to the best type of gloves for lobster hunting. However, many

divers wear a thin, neoprene gauntlet-style glove for warmth and to protect wetsuit sleeves from wear and tear, then pull a pair of canvas or synthetic leather work-type gloves over them for protection.

Other divers modify their gloves by dipping the fingertips in rubber cement or coating them with wetsuit glue. Common garden gloves are used by some divers while several of the expert lobster hunters swear by a brand of work glove called Winter Tuf Duks, and a few equipment manufacturers have introduced heavy-duty gloves designed specifically for lobster diving. Deciding which type of glove is best for you is a trade-off between protection, warmth, gripping ability and dexterity.

As previously stated, you need to carry a caliper-type gauge while lobster hunting. Inexpensive gauges made of stamped aluminum are available in any dive shop. Attaching your gauge to the outside of your game bag by a short length of sturdy cord will ensure that you have it with you whenever you need it.

One of the major strategies for lobster diving is to cover a lot of ground, which means it's best to keep gear to a minimum. By reducing drag you improve air consumption and are able to swim greater distances with less effort.

Buoyancy compensators probably produce more drag than any other piece of equipment, so many lobster hunters opt for a low-volume, low-profile bladderless BC or a back-inflation-style BC. But for

some hunters, even these types of BCs create too much drag, so they eliminate wearing BCs altogether and dive with backpacks only. While generally not recommended, this style of diving greatly reduces water resistance, the amount of weight you need to wear and increases freedom of movement. Slim-line tanks and mesh bags can also help streamline your diving profile.

When it comes to equipment for lobster diving, the bottom line is simplicity and function. And that helps keep costs down, which makes it all the more enjoyable.

**A FIRM GRIP
IS REQUIRED
WHEN BAGGING
LOBSTERS.**



WHERE TO FIND THE BEST BUGS

Since it's illegal for anyone except Mexican fishing cooperatives to take lobsters in Mexico, our hunting territory starts at the Mexican border and extends north to around Point Conception.

While beach diving is certainly not the easiest way to hunt lobsters, substantial numbers are bagged each year by dedicated beach divers. So if you're considering some shore-based hunting, head for the beaches that are less-frequented by divers, then once you get in the water swim away from any heavy diving traffic areas. Search any rocky areas, and don't pass up the shallows and exposed areas that other divers tend to pass right by. Areas with difficult access or less scenic

conditions might not make for a pretty or an easy dive, but they are more likely to give you your limit.

Breakwaters are a prime habitat for lobsters. Commercial lobster traps are not allowed near breakwaters, so this usually results in above average lobster diving.

Elsewhere along the coast, a good indication of promising lobster territory is the presence of lobster traps. Lobster fishermen know the reefs, so a series of trap buoys is a good sign that bugs can be expected to be found in the area. Using buoys to find a good dive spot is perfectly legitimate, but don't let greed tempt you into doing anything dumb. Taking a lobster from a trap is theft and considered poaching. Fish & Game has been known to run sting operations every season to catch trap raiders, and those who get

caught violating the law face major legal problems.

Tying up to trap buoys should also be avoided.

By using a private

boat you can

run across many excellent hunting

opportunities. Many

areas of coastline have little or no beach access and are rarely visited by charter boats.

Consequently, rugged coastal areas like the

Pt. Loma kelp beds in

San Diego, South

Laguna in Orange

County, the Palos Verdes

Peninsula and the Malibu/

Ventura coastline all offer

excellent lobster hunting for divers who can get out to them.

Most of the offshore islands are a good bet for lobster hunting via both private and charter boats. San Clemente and Catalina islands, for example, are easily accessible and offer good lobster hunting. However, lobster hunting is not that productive on most parts of San Miguel, and Anacapa has too many large preserve areas where no hunting at all is allowed.

But farther offshore, Cortes Banks, San Nicolas Island and the Talcott Shoals area of Santa Rosa Island are all legendary lobster grounds. Talcott Shoals and San Nicolas, with their ledges and shallow holes, are known not just for producing limits, but for their 10-pound-plus "toads" that are still caught on a regular basis.

Charter dive boat trips are an excellent bet for would-be bug divers. Many boats offer trips specifically geared to lobster

Rosa islands. He prefers searching rough water and shallow areas.

Equipment: No BC; standard mesh game bag; thick yellow plastic gloves.

Hunting Techniques: Jim is a strong believer in solo hunting. He feels the most important skill is being able to learn to read the terrain. He looks for healthy reef areas with lots of holes and plants for cover. Abundant fish life is also a good indicator of prime lobster territory.

Jim stays as high as the visibility will permit and swims along looking for antennae. He stops to investigate any antennae sightings or good terrain he comes across.

Instead of grabbing for the horns, Jim prefers to lure a bug out of its hole and then grab from above or one side. If the bug retreats into its hole Jim believes it can often be lured out again. If a bug is out in the open Jim will approach it from behind then pin it against the ground.

David Frazier

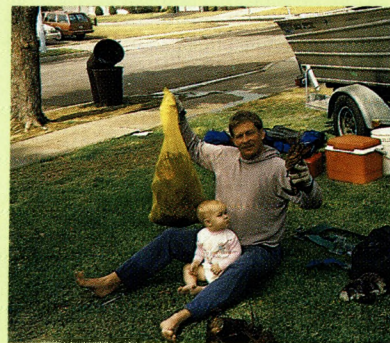
Huntington Beach, CA

Although Dave has been scuba diving since 1958, he hunts lobsters exclusively while free diving. Last season Dave pulled an 8½-pounder out of about two feet of water at Catalina Island's Howlands Landing.

Favorite Spot: At night along the front side of Catalina Island, west of Long Point. Dave feels the best time for lobster hunting is during a high tide on a moonless night.

Equipment: No tanks; thick cotton garden gloves, a mesh game bag and a primary and back up light.

Hunting Technique: Dave's preferred system is to work with three divers in a private boat. Leaving one man in the boat,



Dave Frazier hunts for bugs exclusively while free diving.

the buddy team in the water can then head off along a stretch of rocky shore while the boat follows. The divers work in shallow water 15 feet deep or less. Unencumbered by scuba gear and not having to

backtrack, this system permits the buddy team to cover a lot of ground.

When free diving Dave recommends approaching bugs from the rear and keeping your light beam off any targets to avoid spooking them. Since free divers have little time for prolonged battles with the larger bugs, Dave simply grabs them and hugs them against his chest and then surfaces before attempting to bag them.

Stephen Alford
Santa Monica, CA

During lobster season Steve makes about 15 night dives a week. He has won the Dive 'n Surf lobster contest four times and last season's Viz Sportswear Bug Hunt with a 14-pound, three-ounce entry. His biggest bug ever weighed in at 15 pounds, nine ounces.

Favorite Spots: Charter boats to the Channel Islands, along the Malibu/Ventura coastline in private boats (where he catches most of his big bugs) and any artificial reef areas, because he feels they do not provide quite enough cover to fully protect the lobsters from hunters.

Equipment: He doesn't use a BC; he does use a game bag that has an internal



Stephen Alford is a long-time lobster contest winner.

frame and a special trap entrance; standard gloves; dive lights with red lenses.

Hunting Techniques: Steve's a solo hunter. He likes to cruise high off the reef and scan as wide an area as possible for lobsters. Steve approaches a holed lobster with both arms forward. He uses his lower hand to attract the lobster's attention, then grabs for the horns with his upper hand. If he misses the horns and winds up holding the antennae, he will crawl his hand along the antennae until he reaches the horns. □



hunting. This can be a significant advantage for lobster hunters because these trips are usually faster-paced, utilizing shorter gate times and hitting more spots than regular dive boat charters do. Also, they are usually geared toward more advanced divers so they will head for dive spots that are less protected but offer better hunting.

WHEN TO HIT THE WATER

"Opening Night" has become a monumental event in Southern California's diving community. Boat charters sell out far in advance and the beaches are lined with divers. Then at 12:01 a.m. on opening day, the diving hordes converge on the crustaceans.

You might wonder whether it is really that important to be in the first wave of hunters that hit the water. Some interesting statistics compiled by Fish & Game can shed some light on this question. The following figures represent the total poundage of lobsters caught by commercial fishermen in the 1987-88 season, broken down by month:

October: 322,131 lbs.
November: 123,379 lbs.
December: 81,443 lbs.
January: 46,031 lbs.
February: 23,330 lbs.
March: 13,696 lbs.

These statistics show that over half the total season's catch was caught in the first month. In subsequent months the catch was reduced considerably. This clearly indicates that there is an advantage to hunting early in the season.

It also would seem to indicate that by the end of the season our lobster population is about depleted. Does this mean that *Panulirus interruptus* should be placed on the endangered species list? Surprisingly, the answer is no. According to Fish & Game, the trend indicated by the figures

above are typical of an average season. Yet for each of the past several years the total annual catch has actually been increasing. This would suggest that the current Fish & Game regulations are successfully managing the species.

But don't let these statistics discourage you from hunting late in the season. Experienced hunters manage to do well all through the season. Some even claim to have their best results in the closing weeks of the season.

TECHNIQUES THAT GET RESULTS

While there are a variety of approaches to lobster hunting, it pays to adhere to some basic principles. Two of the most widely accepted strategies for hunting success are simply to try and be the first in the water and to cover lots of ground.

Another principle that most hunters agree upon is "he who hesitates is lost." When you encounter a lobster in the open or sitting at the edge of a hole, don't spend too much time planning your attack. Surprise is on your side; don't give the bug too much time to think.

After you spot a lobster, move in ready to strike. Arrange your equipment (game bag, light) so that your hands are free. Bring your hands up into striking position. Kick toward the lobster in this position and make your grab as soon as you see an opening. If you allow the lobster time to withdraw into a hole your odds of bagging it are slim to none.

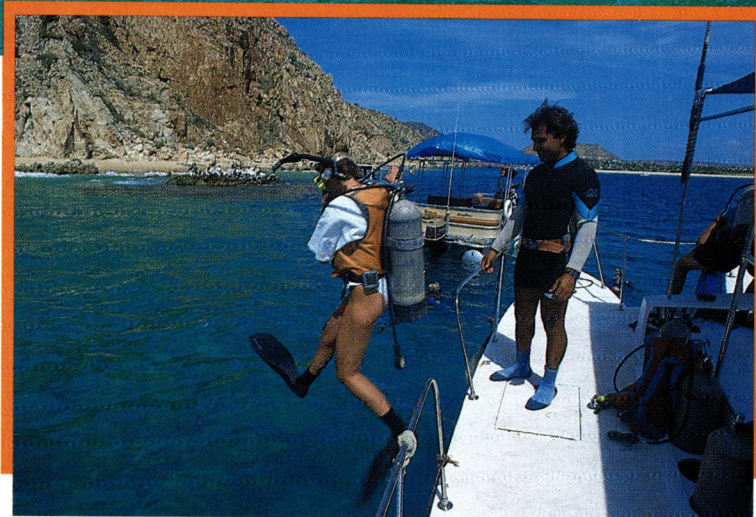
Another excellent move for any aspiring lobster hunter is to pay attention to what the experts are doing. Learn their techniques, ask questions and above all, watch and listen. Then get out there, and catch the fever. BUG FEVER, that is! □

Scott Sansenbach is a free-lance writer and photographer living in Anaheim, California.

Escape to the Cape

You don't have to wait for your annual vacation to take in a foreign dive adventure. Baja's Cabo San Lucas is a warm-water paradise you can enjoy on any long weekend.

Above: The arch at Land's End. Right: Diver hits the water at the Sandfalls.



Article by John Brumm

Photos by Steve Essig

Contrary to what you may have heard, it's no picnic being a magazine editor or photographer. Just like everybody else we sometimes get overworked, which is why one recent Friday morning when the boss wasn't looking PD's staff photographer Steve E. and I escaped the rat race for a long weekend of diving and relaxing in Cabo San Lucas.

After a two-hour flight from LAX we were on the ground at the San Jose del Cabo airport. Passing through customs, we hopped an airport taxi and drove along the coast to Cabo San Lucas. Following the main road to the other side of town where Cabo's famous sportfishing fleet is docked, we turned up a small hill to the Hotel Solmar.

The Solmar is unique in Cabo San Lucas because it sits by itself on a beautiful stretch of beach facing the Pacific Ocean. But in spite of its isolation, the Solmar is still less than a mile from the center of Cabo San Lucas, it's the closest hotel to the sportfishing docks, and most importantly for us, it's the closest hotel to Amigos del Mar, the dive operation that we were going to be diving with for the next couple of days.

Before we left the States we had made arrangements to dive Friday night and



Amigos del Mar's pontoon boat at anchor near Anegada Rock.



The staff at Amigos del Mar is the most experienced in Cabo San Lucas.

Saturday and Sunday mornings. So when we checked into the hotel we found a note waiting for us from Jose Luis Sanchez of Amigos del Mar welcoming us to town and confirming our diving reservations. He sends these welcome cards to all divers who have made reservations with him; it's a good feeling to know as soon as you hit town that somebody is expecting you.

According to the note we didn't have to be down at the shop until 7:15 that evening for the night dive, so after throwing our gear in our room we went over to the hotel's La Roca Restaurant, ate some chicken tacos, then eased into the shade of the palapa bar to watch the sun go down.

While it's possible to dive Cabo San Lucas year-round, from January to May the conditions are more like what you'd find off the coast of California rather than at a "tropical" dive destination. Cabo's prime diving season is really from June to December. In June, July and August the diving is very good with water temperatures ranging in the high-70s to low-80s, and visibility from 60 to 80 feet. September's diving is very good to excellent when the weather is calm, and October through December it's simply fantastic, with water temperatures in the low- to mid-80s and visibility regularly running 80 to 100 feet.

The sun finally dropped behind the hills and it was time to go diving, so we grabbed our gear and took a taxi down to the dive shop. (It's only a five minute walk from the hotel to the dive shop, but we had all our gear to carry and, besides, we were on vacation and I had no intention of working up an unnecessary sweat.)

At Amigos del Mar we met Ricardo. Normally Ricardo runs the shop, but he's addicted to night diving so whenever one is scheduled he always manages to sign on as dive master. Ricardo and his staff took our gear across the street and loaded it on their pontoon dive boat while we ambled along behind, Steve weighted down with all his cameras and hard cases while I

wrestled with my pocket notebook and ballpoint pen.

On board we met a couple of divers from New York, a fellow Californian and Roberto, another Amigos del Mar dive master who was also a night diving fanatic. He was just tagging along for the fun of it.

Casting off, we chugged out to Anegada Rock, about a 10-minute ride from the dock. Anegada Rock drops sharply below

the surface to about 60 feet. Suiting up, we all eagerly jumped into the water. Visibility was about 50 feet, the water temperature 82 degrees. Everybody was wearing either skinsuits or 1/8-inch shorties.

Switching on our lights, the rocks exploded in vibrant yellows and oranges and browns from all the anemones and gorgonians. Stingrays cruised the base of the rock, and foraging lobsters and morays were out in force. Nestled in close to the rocks parrotfish and triggerfish hovered in such a night stupor that we could swim right up and touch them.

After being underwater for close to 40 minutes we climbed back aboard the pontoon boat and headed for shore, talking all the while about what we had seen on our first dive in Cabo. Since Steve and I and another diver were scheduled to dive with Amigos del Mar the next morning, when we got back to the dock Ricardo and Roberto and an assistant gathered up all our gear and took it over to the shop where they rinsed out our regulators and hung up our wetsuits to dry for the next morning.

Without having to lug our gear back to the hotel, we set off up the hill in the balmy night, Steve grunting beneath the weight of his camera gear, me getting tired just watching him.

Amigos del Mar: Cabo's Diving Old-Timers

Amigos del Mar, owned and operated by Jose Luis Sanchez and Manolo Metaca, is the only full-service, independent dive operation in Cabo San Lucas (other dive operators either work out of hotels or from little booths on the sportfishing dock). Jose Luis has been leading dive tours in and around Cabo San Lucas for over 11 years, and Manolo, a former commercial black coral diver, has been diving the area for 18 years.

Amigos del Mar runs an average of 25 to 28 divers per day off of three boats: 33-foot and 37-foot trimarans and a 22-foot pontoon boat (there's also a 22-foot panga available for special destinations).

Day rates are \$35 for a one-tank dive; \$55 for two tanks (minimum of two people) and \$45 for a night dive. All dive tours include a boat, an English speaking guide, tanks, weights, backpacks, sodas and beer.

If you buy a dive tour and need to rent some gear Jose Luis makes it available for only \$4 per item. So if you were to bring your own mask, fins and snorkel, it would only cost \$12 to rent a BC, regulator and wetsuit.

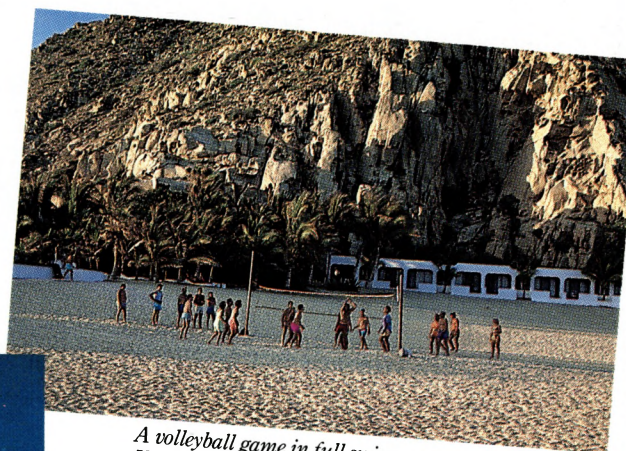
Open daily from 8:30 a.m. to 4:30 p.m., for more information you can contact Jose Luis at Amigos del Mar, P.O. Box 43, Cabo San Lucas, B.C.S. Mexico; phone number 3-05-05, or call the U.S. reservations office at (800) 262-6670 CA or (800) 821-6670 national.

The Pinnacles was a spot to poke around in the crevices with a pocket light.





Left: The 33-foot trimaran Amigo I provides fantastic stability and massive deck space. Below: Sitting in 90 feet, the Sandfalls avalanche is a breathtaking sight.



A volleyball game in full swing on the beach in front of Hotel Solmar.

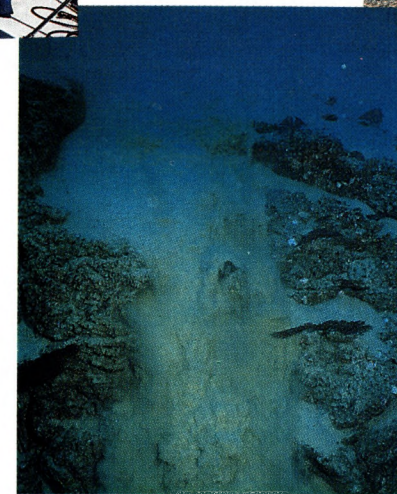
Since most Cabo dive sites are located from 10 to 30 minutes from the dock, you don't have to check in at the shop until nine in the morning, and the boats don't even leave until 9:30. So Saturday, by the time we crossed the street to the pontoon boat after a leisurely breakfast, we found our gear already loaded on board along with an ice chest full of cold drinks. Diving with us this morning was a couple from Texas and a doctor from Arkansas. The dive master was Marco, and Luis was driving the boat.

We set a course for La Larga, a craggy rock that looks like an upside down sculpture of Baja California. Underwater we found a series of steep canyons 60 to 80 feet deep. As it turned out, La Larga was the least exciting dive of the day. While the water felt great, the visibility was a little cloudy and, with the exception of a couple pufferfish, sea life was sparse.

That is, except for the cloud of jellyfish that happened to float by on the surface. They were tiny and almost transparent so we ended up swimming right through them without even knowing it. Since I was wearing a skinsuit I didn't get stung, but Steve did, as did one of the Texas divers. So they got to spend the next couple of hours smelling like a tossed salad as they wore vinegar and meat tenderizer on their wounds.

After La Larga we had to return to the dock to pick up tanks for our second dive. At first this sounded like a pain-in-the-neck maneuver. But since it was only a 10-minute ride back to the dock, it turned out to be an enjoyable harbor cruise and a good way to spend our surface interval time. While the crew was exchanging tanks, we had an opportunity to use the rest rooms and grab a taco at a great little stand on the sportfishing dock.

In no time we were on our way out the harbor again. This time we headed for The Point out at Land's End, which we found to be a truly first-class dive spot. Luis brought the boat in close to the lee of the cliff and we hit the water, submerged to 50 feet, then kicked around the corner



to the weather side. Here the depths dropped to 65 feet and the water was bustling with sea life. There were huge parrotfish, spotted trunkfish, stingrays, huge schools of baitfish, longnose butterflyfish, as well as a variety of other types of tropicals and, of course, the countless pufferfish with their big puppy-dog eyes and hysterical little fins. Along the edge of visibility we saw hefty groupers warily keeping an eye on us. Even a sea lion appeared for a moment to check us out, which was surprising because these animals have become somewhat scarce at Land's End.

Visibility was a solid 60 feet and the water was warm, although there was a little surge due to the Pacific waters intermingling with Sea of Cortez waters.

After 30 minutes it was time to return topside, so we all reluctantly started our ascents. Luis had been following our bubbles and was standing by to pick us up when we reached the surface.

And just like that the day's diving was over. Sipping soft drinks and beer we all recounted the dives and then started making plans to grab some tanks from the shop and go beach diving later in the afternoon. Marco heard us talking so he suggested we stop by the shop to get directions to some prime beach dive sites when we picked up the tanks.

But by the time we arrived at the dock the hot sun and warm breeze and cold beer had mellowed us out a bit. We looked at our gear and then looked at Marco. He

said he'd be happy to take the gear over to the shop for us. We thanked him and said we'd be back later to go beach diving. Marco just smiled. As we started for the hotel, Steve offered me 5,000 pesos to help him carry his camera gear up the hill. I would have gladly complied but my hands were already full carrying my notebook and pen.

After lunch at La Roca we retired to a couple of pool area lounge chairs to discuss our afternoon beach dives. A volleyball game was cranking on the beach; we considered joining that contest. Then Steve, being an old rock climber, snarled at a granite cliff overlooking the hotel and stood up as if to challenge it. But the sky was too bright and I had to close my eyes, and by the time I opened them again the sun was on its way to the other side of the world and Steve was facedown in the sand beneath a coconut palm.

Steve dragged himself over to the pool and dunked his head to wake up, then we headed out front and climbed into a taxi to go get some dinner. I had heard some great things about a little Italian restaurant not too far from the hotel called Romeo & Julieta's, so we figured we'd go give it a try. The pasta was great, and the place was air-conditioned, so we hid out from the heat for awhile.

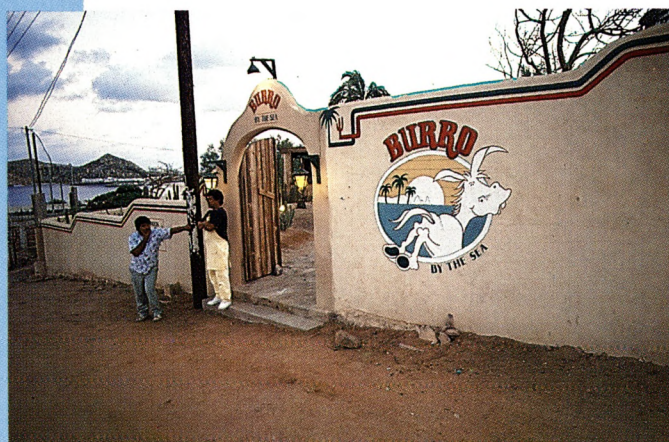
After dinner we decided to go get something cold to drink. Flagging another taxi, we drove down the main drag of town. The place was Saturday night wild, and the sidewalks were packed with partiers. We pulled over and got out in front of the Giggling Marlin, but there were so many people having so much fun that I figured if I walked inside that place I'd never make it to the dive boat in the morning, so instead of throwing ourselves into the revelry we walked down to the corner and bought some ice cream, the whooping and hollering fading like a cheap perfume in the warm air behind us.

Continued

*A pufferfish
greet a
visiting diver
at La Larga,
near Land's
End.*



*Tucked in an
older section
of town, the
Burro by the
Sea is an
open air
cantina with
good food and
friendly
people.*



*Pangas tied up along the sportfishing dock on a typically
sunny Cabo San Lucas morning.*



Sunday morning we arrived down at Amigos del Mar to find that we had been assigned to dive on *Amigo I*, a 33-foot sailing trimaran that has been converted into a dive boat. The two outer hulls provided fantastic stability and massive deck space. We had eight divers aboard, not including Marco the dive master and Juan the boat captain, and it was still incredibly roomy.

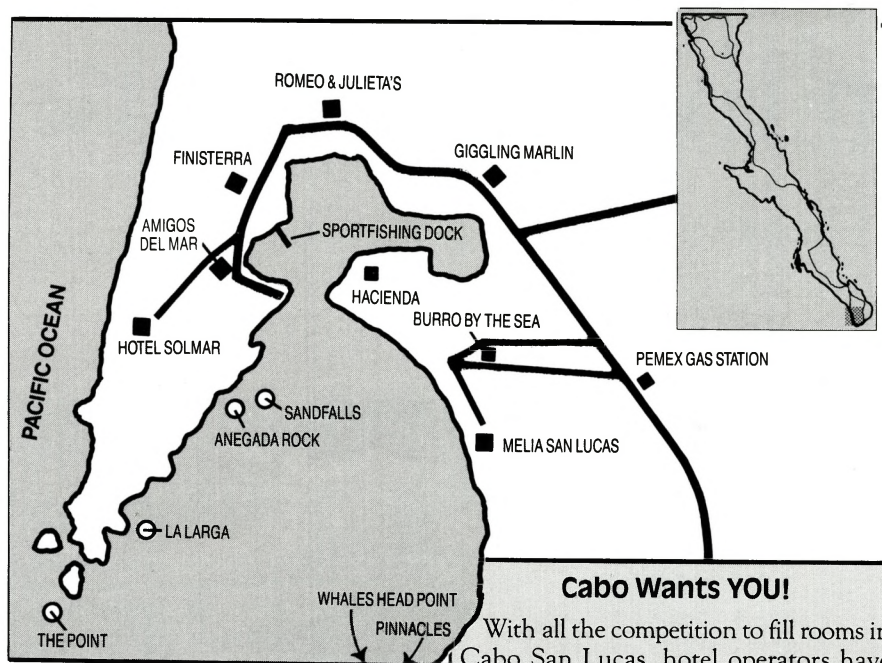
Our first stop was the Sandfalls, a famous Cabo San Lucas dive site located at the head of an immense submarine canyon that runs up one side of Cabo Bay. We jumped into the water and headed for the drop-off, following the contour of the bottom until we reached this enormous 3,000-foot-deep gash in the ocean floor. As I hovered over the canyon looking down into that blackness I couldn't help but wonder what was down there looking back up at me.

Visibility was 75 feet, the water temperature was 84 degrees. But as we neared the Sandfalls (which sits in about 90 feet) the visibility lessened somewhat and cold water rushing up from the canyon depths created a few chilly thermoclines.

Sand traveling down the entire length of Baja's Pacific Coast works its way around the point and piles up at the head of the submarine canyon. When enough sand accumulates, the pile suddenly collapses and sand tumbles over the edge like an avalanche. We were lucky enough to be there when the sand was actually moving, and it was a breathtaking sight.

Thirty-five minutes later we were back on the boat. A few of the divers on board had signed up for only one dive, so to burn off the surface interval time for us two-tank divers and to give the one-tank divers a little more for their money, Juan took us on a sightseeing tour out to the famous arch before returning to the dock to drop the one-tankers off. Then the rest of us cast off again, and Juan steered across the bay to Whale's Head Point to dive the Pinnacles.

After a 35-minute ride we arrived at the dive site and dropped down onto a bottom of boulders and rocky outcrops about 65 feet deep. The water here was warmer than it was over by the submarine canyon but the visibility wasn't quite as good. It was still a nice dive, though, the type of spot where you pull out your pocket light and poke around in the crevices, or just hang off the bottom staring out into open water to see what might swim by.



Cabo Wants YOU!

With all the competition to fill rooms in Cabo San Lucas, hotel operators have been getting really aggressive with their special packages.

For example, running through October 15 the Hotel Solmar is offering four-day/three-night packages for as low as \$235 per person, which includes hotel, air fare, taxes and service charges.

Or, if you prefer to handle your own air fare (you can usually find one of the airlines running a special price of around \$200 round-trip), Hotel Solmar offers a four-day/three-night weekend room package for \$112.50 per person that includes a bottle of wine at La Roca Restaurant, one free dinner at the Galeon Restaurant, another free dinner at Romeo & Julieta's, and a complimentary *bienvenidos!* margarita. What the package doesn't include is the 15 percent tax or the 10 percent service charge.

If you can sneak away during the week, the Solmar offers five days/four nights for \$113 per person. (Weekend days are Thursday through Saturday; week days are Sunday through Wednesday.)

For more information on the Hotel Solmar's special packages write the U.S. office at P.O. Box 383, Pacific Palisades, CA 90272, or call (800) 344-3349.

Cloud puffs were blocking the sun by the time we climbed back on board *Amigo I* which was a nice break from the intense rays that had been trying to blister my gringo skin all morning. We got back to the dock in time to grab a couple of delicious fish burritos from a stand across from the dive shop, then we reluctantly said our good-byes to the gang at Amigos del Mar before grabbing our gear and heading up the hill to the hotel.

We spent a lazy afternoon around the pool and palapa bar, then when the sun went down we decided to go into town for a farewell dinner. Waving down a taxi, I asked the driver in my best Spanish to take us somewhere with some local flavor. He drove us to an older section of town and stopped on a hill in front of an interesting little place called Burro by the Sea. We walked into a little courtyard with a cactus garden and an open air cantina. All the tables and chairs looked out over the harbor. A soft breeze rustled the ends of the thatched roof while Roy Orbison and Tracy Chapman and Paul Simon took their turns in the tape deck. The food was great (especially the fish fajitas), the drinks were tasty (try the mango margaritas!) and the people were friendly. It was like sitting on a patio enjoying the evening with a bunch of old friends you happened to have just met.

Alas, all long weekends must eventually come to an end. Monday morning we caught an 11:45 flight back to Los Angeles, just in time to get trapped in an immigration and customs fiasco that took over an hour to work through. Then we hit rush hour traffic on the San Diego Freeway. Although we arrived at LAX at 2 p.m., we didn't make it to Orange County until just

before 6 p.m. Yep, we were home all right.

I think what I liked best about Cabo diving was that it was so easy. The hotel was just a short walk from the dive shop; the dive shop was just across the street from the boat docks; and just a short boat ride from there was the best shore-based diving you can find within a two-hour plane ride of Los Angeles. And it's waiting there for you to make your own weekend escape. □

John Brumm is editor of *PACIFIC DIVER*.

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Focusing on the Big Picture

From disposable cameras to state-of-the-art photographic systems, what's right for you depends not only on your level of interest, but on how much you're willing to spend.

Article and photos by Darren & Stacey Douglass

Underwater photographers are a strange breed. They speak in a language of f-stops, aperture, resolution and depth of field, pushes and pulls, guide numbers, shutter speeds and ISO dials. They're the ones who sit bleary-eyed in dive boat salons until the wee hours of the morning meticulously cleaning and recleaning and lubricating and relubricating O-rings, checking batteries, loading film and praying nothing floods. Covering the salon tables are a costly collection of strobes, lenses, housings, chargers, tool boxes and assorted equipment bags. All just to capture a few pretty pictures underwater.

Why do they do it? Simply, because underwater photography is a lot of fun.

The investment required to get into underwater photography can range from "hey, that's not bad!" to "you've got to be NUTS!" depending upon what your objectives are. But that's what's exciting about the photographic medium; there are few limitations. So for all you divers who have had the itch to get into underwater photography, perhaps this article can help you determine what kind of photographer you want to become, and what it's going to cost you.

QUALIFY, YOU'VE GOT TO QUALIFY!

"Just what do I really want to do?" and just as important, "What do I want to be doing two years from now?" may be simplistic questions, but you'd better have answers for them before you go out and start giving people your money. As a rule, photographers fall into one of the following categories:

1. The **SNAPSHOTTER**, who takes a diving vacation perhaps once a year, doesn't care too much about aesthetics, but instead merely wants to record his diving adventures on snapshots for photo albums or to pass around the office.

2. The **AMATEUR**, who enjoys spending his time underwater capturing wide angle and macro images on quality 35mm

Sea & Sea's Motormarine II is a strong contender in the amphibious camera market.



film, perhaps to display them on office or living room walls, or in slide form for entertaining friends and family.

3. The **ADVANCED AMATEUR**, who invests in professional equipment and seeks professional results, enjoys entering photo competitions, but is motivated primarily by the enjoyment of his hobby rather than by the lure of actually making money with his images.

4. The **PROFESSIONAL**, like the Advanced Amateur, invests in professional equipment and seeks professional results, and probably enjoys it too, but he is motivated primarily by the possibility of

earning income by "leasing" his images to publications, stock photo houses, media agencies, etc.

Let's take a look at the four photographer categories and at the gear best-suited to achieve the desired results in each category. Hold onto your wallets, and here we go!

THE SNAPSHOTTER

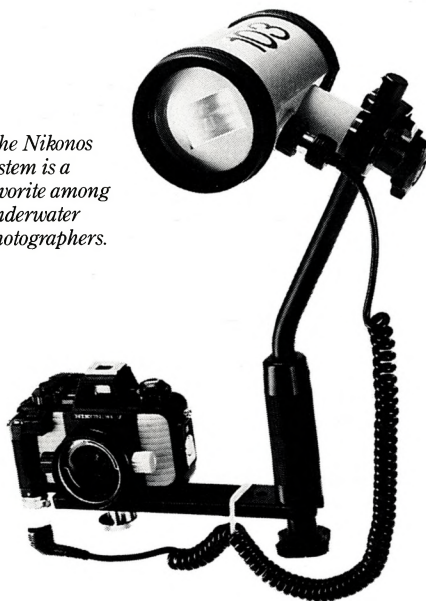
This individual usually does not care a lick about composition, proper exposure or, rarely, focus. All this person wants is an image — proof that he was underwater swimming with fish.

For this kind of picture-taking there are several inexpensive camera systems available. Perhaps the simplest and most cost-effective is Kodak's **Weekend 35**, known as the "Fling Camera." This is a waterproof 35mm "throwaway" camera loaded with 24 exposures of Kodacolor Gold print film. You simply shoot off your pictures and then send the whole camera in for developing. The camera is waterproof (Kodak claims) to a depth of 12 feet, which makes it great for snorkelers. The Weekend 35 retails for approximately \$16.95.

For those Snapshotters who want to go deeper than 12 feet, **Sea Fathoms** manufactures a small throwaway 35mm system in a flexible housing that can go as deep as 140 feet. The system sells for about \$20.

If you happen to own a standard topside-type Ansco, Kodak or Keystone disc camera, Ikelite manufactures an

The Nikonos system is a favorite among underwater photographers.



underwater housing for them that retails for about \$120. The disc housing system is easy to use and is expandable (Ikelite offers a close-up kit and framer as well as the Substrobe S, a cordless strobe designed for use with the housing that fires when the built-in flash is deflected into its light sensor).

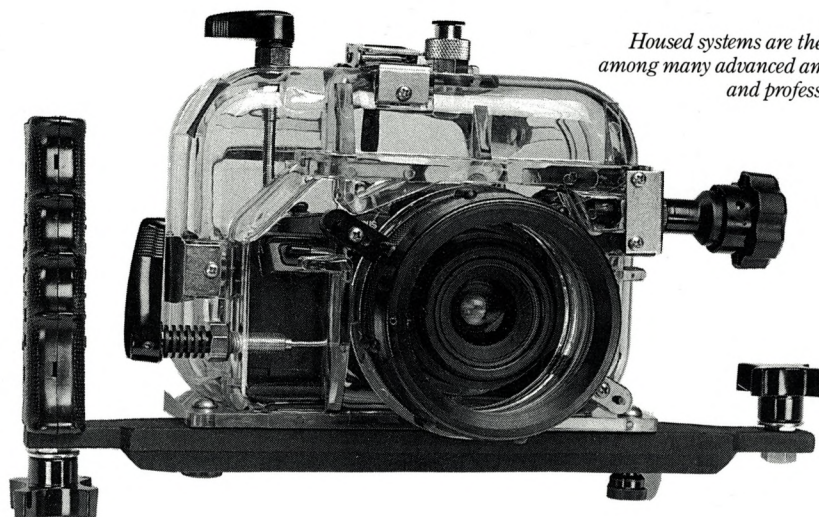
Of course, Snapshooters can achieve snapshot-style results with standard underwater 35mm systems, like the Nikonos V or the Sea & Sea Motormarine II, just by slapping in a roll of film, setting everything on automatic and blasting away. This would definitely be an option to consider for Snapshooters who see themselves one day becoming Amateur underwater photographers.

THE AMATEUR

Unlike the Snapshooter, the Amateur underwater photographer pursues his hobby with a bit more seriousness. The Amateur may shoot print film and keep an extensive photo log of various dive trips and underwater adventures, or he may use 35mm slides (more economical over the long run) that can either be enlarged into prints or loaded into carousel trays for Saturday night slide presentations.

There are a variety of systems available to the Amateur photographer, but by far the most popular are the extremely user-friendly amphibious (watertight) camera systems.

The best known amphibious system is Nikon's "Nikonos" underwater camera. Now in its fifth generation, the **Nikonos**



Housed systems are the choice among many advanced amateurs and professionals.

V features excellent optics as well as a number of automatic options, plus it is rugged and offers a wealth of accessories. It also has a pretty hefty price tag. A Nikonos V with 35mm lens retails for about \$650 (Nikonos prices are known to fluctuate widely from store to store, so shop around).

Sea & Sea manufactures a less expensive alternative to the Nikonos system called the **Motormarine II**. This is a plastic 35mm amphibious camera with a variety of accessories. Sea & Sea's system is unique in that it offers a number of "screw-

on" lenses that can be installed or removed underwater. A start-up Motormarine II system will cost about \$500.

For years now, Ikelite has been manufacturing relatively inexpensive plexiglas housings (starting at around \$400, which is "inexpensive" when you consider that cast aluminum housings cost upwards of \$1,500) that can be used with just about every 35mm camera under the sun. If you already own a 35mm single lens reflex (SLR) camera and a variety of lenses, this is an option. However, be aware that housing systems are a little more difficult to use. If you jump right into a housed system, be prepared for some frustration and fuzzy photos at first. But with practice, housed cameras provide advantages in picture-taking that you can't get with Nikonos or Sea & Sea systems, especially in the area of macro photography.

Regardless of the camera system, Amateur photography is where you begin using underwater light sources (submersible strobes) and developing wide angle and macro photographic techniques. When purchasing an underwater strobe expect to spend (gulp!) nearly as much for your strobe as you did for your camera.

Amateur photographers tend to be interested in TTL (through the lens) strobes. A TTL strobe teamed with a TTL camera (such as the Nikonos V camera/SB103 strobe or the Motormarine II camera/YS50TTL strobe) share an electronic relationship where the lens meters the amount of light reflecting off the subject and determines the correct exposure.

But while TTL lighting is easy and works relatively well, it does have its limitations. That's why many photographers prefer a strobe that can be used in the manual mode (where you control all light output; something you'll definitely want to be able to do if you plan to progress to an Advanced Amateur). For an Amateur photographer, however, TTL

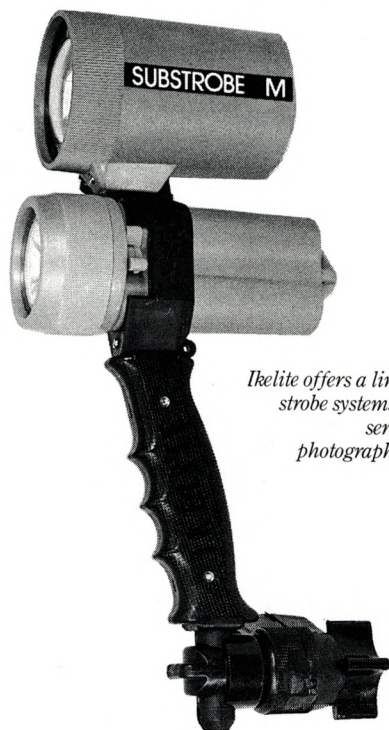
Tips for Buying U/W Camera Gear

EXPANDABILITY: This should be the keystone of all your underwater photographic investments (because with the kind of money we're talking about here, this is clearly an *investment*).

Most important: make sure your system is able to grow along with your ability. Nothing is more frustrating than locking yourself into a system that can't take you where you want to go.

LIGHTING: A reliable light source is every bit as important as camera, lens and film. Choose a strobe that can offer a variety of beam angles to match a selection of lens coverage. And while power settings are nice, a versatile and adjustable arm bracket system can often provide the same flexibility and control. Simply move the flash head closer to the subject for more light; back it away for less light.

Strobes that offer "snap-on" diffusers provide added versatility. And using two strobes instead of one evens out the lighting, reduces shadows and in some cases can give the appearance of cleaner water by "bouncing" the light off particulate matter and illuminating fewer particles in front of the lens.



Ikelite offers a line of strobe systems for serious photographers.

lighting (selling for an average of about \$500) will produce pleasing photographs, and some strobes do offer both TTL and manual settings (usually for about \$100 more).

Camera lenses are another consideration. Lenses must be selected carefully with a particular subject or objective in mind. An excellent way to start playing with various optics is to incorporate an extension tube set into a Nikonos system (these are extended "rings" that mount between the camera body and lens with "framers" to compose subject material —

running in the neighborhood of \$75 to \$100). By presetting the tubes prior to a dive, you can use an existing lens to photograph much smaller objects. Extension tube photography is fun and relatively easy to get good at. (Something to consider: if you're using a Nikonos system, a 28mm lens used with extension tubes will create infinitely sharper images than the standard 35mm lens which usually comes with the purchase of a Nikonos V body. A 28mm lens retails for about \$350.)

As stated previously, lens-changing is an area where Sea & Sea's Motormarine II

system offers a distinct advantage, since lenses and close-up kits can be screwed on and off the camera while you're underwater. Sea & Sea even offers a "lens caddy tray" that allows you to carry a variety of

Once You've Taken that First Roll of Film...

LAB WORK: Don't entrust your film to just anyone. Talk to friends, pros and knowledgeable sales personnel and find out who they've had the best success with. Just because a lab is big or carries a national name doesn't mean it puts out consistent quality work. There's nothing worse for a photographer than having film damaged by careless processing.

SELECTIVE EDITING: Purchase a decent light table (small briefcase-sized portables can be found in art stores for about \$60) and get a good viewing lupe, a note pad and a can of Vari-Air for blowing dust off the slides. Then, next to your work station place your most important piece of editing equipment — a trash can.

With time you will develop your own editing system, but here are some suggestions if you're just getting started:

1. Once you get your developed slides from the processor, lay them out (roll by roll) on the light table. Write an appropriate heading on your note pad for where the roll was taken, and any incidentals (i.e. "Truk Lagoon/Fumitsuki Wreck").

2. Look over the slides and immediately chuck ANYTHING that's a glaring stinker (under/overexposures, obviously out of focus, poor composition, etc.). Then write down all the mistakes you made in shooting this roll of film.

3. Now break out your lupe and give the remaining slides a good looking over. Pitch any other stinkers. Then separate what's left into three categories: #1 — Awesome; #2 — Possibly Awesome; #3 — Potential Stinkers.

Place your #1s in archival storage pages or specially designed slide storage boxes (available at most photo supply stores) and make any appropriate notes. Then stick your #2s and #3s into slide boxes for reviewing at a later time. Looking at them a week later, you may decide what you previously thought was a #2 was really a #3, or vice versa. Make any notes detailing what worked and what didn't. Then take all #3s and throw them away.

Keep ONLY your best work, and more importantly, show ONLY your best work! You may end up discarding thousands of slides, but when friends view your Top 20, they'll think you're an aquatic Ansel Adams, and maybe some day you will be.

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optics with you on your dive. Sea & Sea's screw-on lenses run from \$250 to \$300 apiece.

THE ADVANCED AMATEUR

The differences between an Amateur and an Advanced Amateur lie in two areas: 1) an Advanced Amateur usually attacks his hobby with a bit more seriousness, or intensity, if you will, than an Amateur, which partly means that 2) he is more willing to spend greater amounts of money on his equipment, especially in the areas of optics and lighting.

Advanced Amateur equipment boxes are where you see 20mm lenses with viewfinders (in the neighborhood of \$700 to \$800) and even those coveted 15mm lenses with viewfinders (upwards of \$2,000 — although Sea & Sea makes a quality 15mm lens for Nikonos systems for about half that).

If an SLR camera is used with a housing, and housed systems are very popular with Advanced Amateurs, you're usually looking at a Nikon F2 or F3 or a Canon A1 body with a high profile viewfinder for detailed composition. These body/viewfinder systems run about \$1,200; add another \$400 if you want a motor drive. Then stick it all in a housing (\$500 to \$1,500) and you've got yourself a housed

underwater system.

Wait a minute. We forgot optics. Stick a 15mm or 20mm lens on the system and, oh yeah, clamp on some strobes, and *then* you're set.

Advanced Amateurs tend to forsake

AN ADVANCED
AMATEUR DIFFERS
FROM AN AMATEUR IN
THAT HE IS WILLING TO
SPEND GREATER
AMOUNTS OF MONEY
ON HIS EQUIPMENT.

TTL lighting for more complex, more controllable manual light manipulation. Often the Advanced Amateur will incorporate either a large strobe system with varying beam angles and power settings or two small strobes to provide even lighting

as well as the ability to ratio the amount of light focused on the subject and foreground. Such lighting systems can cost as much as \$900.

THE PROFESSIONAL

A Professional is really just an Advanced Amateur who makes a living selling his images. The equipment's about the same, the desired results — and actual results — are about the same, and even the investment is often the same (\$5,000 to \$25,000 and more). Professionals simply get to add "for the money" to the list of reasons why they shoot underwater photographs. Plus, if a substantial portion of their incomes are earned by the sale of these underwater images, then they get to take tax write-offs on their equipment and even on those annual trips to the South Pacific. Hmmm. Sounding better?

Regardless of what photographic category you may fall in, or where you may be headed, just about everybody would agree that once you've shot that first roll of film and you get it developed, there is no turning back. You will have initiated yourself into a lifelong learning experience that will leave you breathless, broke and begging for more. □

Darren and Stacey Douglass are PACIFIC DIVER's feature editors.

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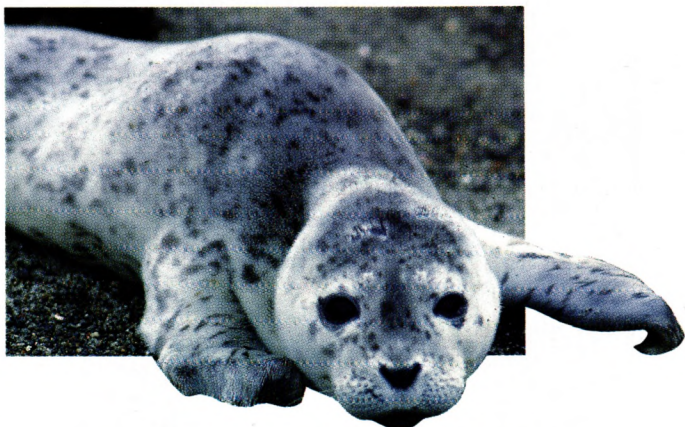
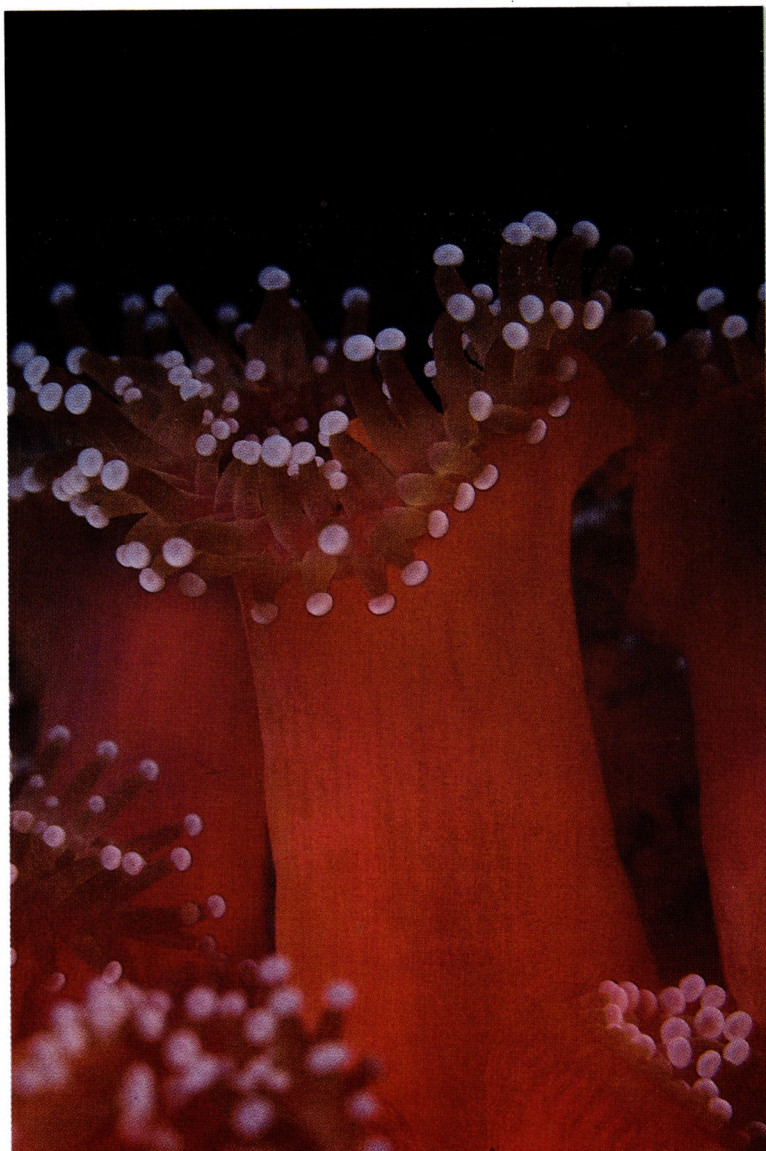
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The North Coast's Stillwater Cove

Whether you're a beginner or an expert, the calm waters and spectacular gamefish and ab hunting found at this dive site make it a Northern California favorite.

Article and photos by Bruce Watkins



Harbor seal pups can sometimes be found on the beaches during early spring.

Through the early morning fog a small, wooden rowboat makes slow progress across the glassy cove. Two schoolboys pull hard on the oars while a younger classmate sits in the stern wearing an ear-to-ear grin. As they approach shore they are met on the beach by a group of friends who whistle appreciatively at the catch of lingcod lying in the bottom of the boat.

In the old days scenes like this occurred daily on the beach below the Stillwater Cove Ranch for Boys, where for \$225 youngsters could take a boat out of Los Angeles or San Francisco and travel up to spend two months learning to hunt and fish and ride horses.

That was 50 years ago. The school is no longer open, but fishermen and divers still come to this North Coast locale to partake in the abundant marine life and breathtaking beauty of Stillwater Cove.

North of the main cove there are still plenty of eight-inch abs.

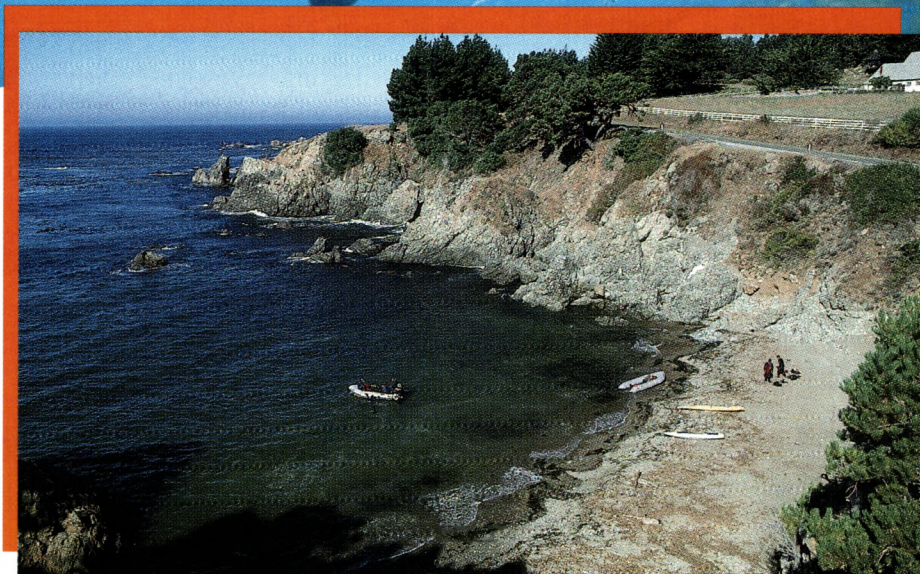


Bright red tealia anemones adorn the bottom outside of Stillwater cove.

PROTECTED MAIN COVE IS PERFECT FOR BEGINNERS

Stillwater Cove is a mecca for Northern California divers. The U-shaped cove faces southwest, providing ample protection from the dominant northwesterly swell. Because of this, it has a reputation for being one of only two spots in Sonoma County where divers can always get in the water, even when the seas off the coast are kicking up. The ease of entry makes the main cove a popular spot for scuba and free diving instructors to bring their beginner classes, and for advanced divers Stillwater Cove is a great place from which to launch a boat, a dive board or even to swim out to many dive sites that are excellent for both game-taking and photography.

The center of the cove is fairly barren,



The U-shaped cove faces southwest, providing ample protection from the dominant northwesterly swell.

made up of a highly textured boulder field where you can find a few legal-sized abalone. Out from the beach there's a kelp bed made up mostly of bull kelp (*Nereocystis leukaena*), but giant kelp (*Macrocystis pyrifera*) and palm kelp (*Pterygophora*

californica) can be found as well. Harbor seals are common on the rocks within the cove, and the north and south walls are covered with an interesting collection of invertebrate life. Under a layer of coralline algae and sea lettuce (*Ulva lobata*) you can

find juvenile red abalone, red crabs and an assortment of nudibranchs including the sea lemon (*Ansidoris nobilis*) and the red and white clown nudibranch (*Triopha catalinae*). For beginners and macro photographers this area can be interesting, but intermediate to advanced divers will find better diving outside of the cove.

SPECTACULAR HUNTING FOUND OUTSIDE THE COVE

Straight out from the cove there is an extensive bed of bull kelp blanketing a series of rocky ridges and small holes in 40 to 60 feet of water. This is a good area to hunt lingcod and cabezon, as well as blue and vermilion rockfish. The spearfishing is particularly good in the late fall when the large lingcod come in from deeper water to mate and lay eggs. Local divers abide by an unwritten rule that forbids them to shoot male lingcod, because males, generally much smaller than the females, guard the nests, and if they are removed the eggs will certainly be eaten by one of the many species of rockfish. Leaving the males to guard the nests ensures that lingcod hunting will remain bountiful far into the future.

Out from the far edge of the kelp there's a rock wall about 200 feet long rising 30 feet or so off the 80- to 90-foot bottom. Some divers call this reef "The White Wall" because it is covered with white plume anemones (*Metridium senile*). On a day when visibility is good enough to see even 20 percent of the length of the wall, this reef is nothing short of spectacular. Hiding among the metridiums are lingcod and cabezon along with an assortment of crabs and nudibranchs. The metridiums, kelp canopy and textured bottom make this an excellent place for wide-angle photography.

North of the main cove there are two small beaches. These can be easily reached either by swimming out from the main cove or hiking down a trail from the turnout above the cove. Here the flat 35- to 40-foot bottom runs right up against the cliffs or slopes onto the beach. There are plenty of eight-inch abalone here for those who can free dive to 40 feet, but few legal-sized abs in the shallows. The rocks just below the cliffs are home to a group of harbor seals. In the early spring this area gets some of the overflow from the large pupping grounds located at the mouth of the Russian River. Divers and beachcombers should leave any "abandoned" pups alone; chances are, the mother is just off fishing.

A little farther north is a raised plateau bordered by wash rocks. This bowl-shaped area is named the Caldron and is one of the best shallow-water abalone grounds on

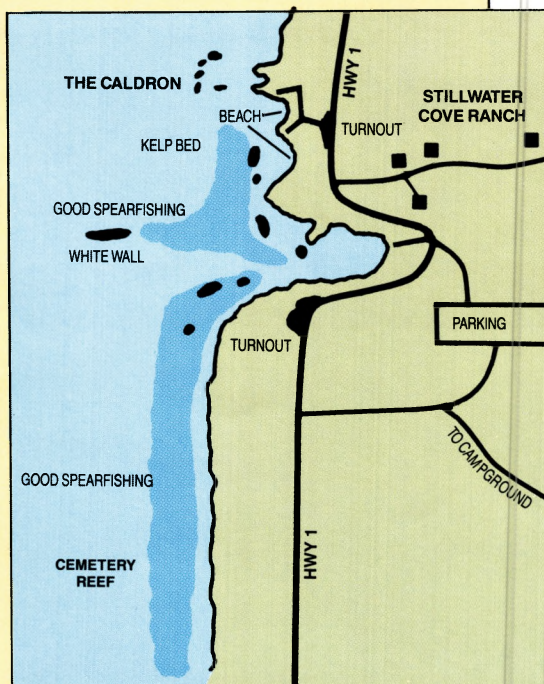
Stillwater Cove Dive Facts

HOW TO GET THERE: From the San Francisco Bay area take Highway 101 north to Petaluma. Proceed west on the Bodega Highway (Washington Street) to Bodega, turn right onto Highway 1, and proceed north. Stillwater Cove is 14 miles north of Jenner on Highway 1.

GENERAL CONDITIONS: The water is predictably very calm inside the cove and highly variable outside. Fall and winter offer the best visibility (30 to 70 feet), while the spring and summer produce the calmest water. The visibility during the spring/summer plankton bloom runs 10 to 30 feet. Water temperatures range between 48 and 55 degrees.

ACCOMMODATIONS: Restrooms are located just off the beach. Small boats may be easily launched via a 150-foot paved path and over a 50-foot gravel beach. No cars are permitted on the path to the beach and parking is not permitted at the junction of the path and Highway 1; only gear drops are allowed. Limited free parking is available at the turnoffs on the north and south ends of the cove and there is a large parking lot in the park (\$2 for day use).

The cove is part of Stillwater Cove Regional Park, (707) 847-3245. There is a campground on the east side of the highway (showers for campers only, \$10 per night, \$8 for Sonoma County



residents), and two inns nearby (with hot tubs and saunas) — Salt Point Lodge, (707) 847-3234, and Timber Cove Inn, (707) 847-3231. Of course, you can also stay in cabins at the Stillwater Cove Ranch, (707) 847-3227.

LOCAL DIVE SHOPS: Jay Baker Center, on Highway 1 in Gualala, has a sporting goods section with rentals, sales and an air station, open 7:30 to 5:30 weekdays, 8 to 5 Saturdays, and 10 to 4 Sundays. Call (707) 884-3534.

WEATHER/WATER REPORT: (707) 847-3222.

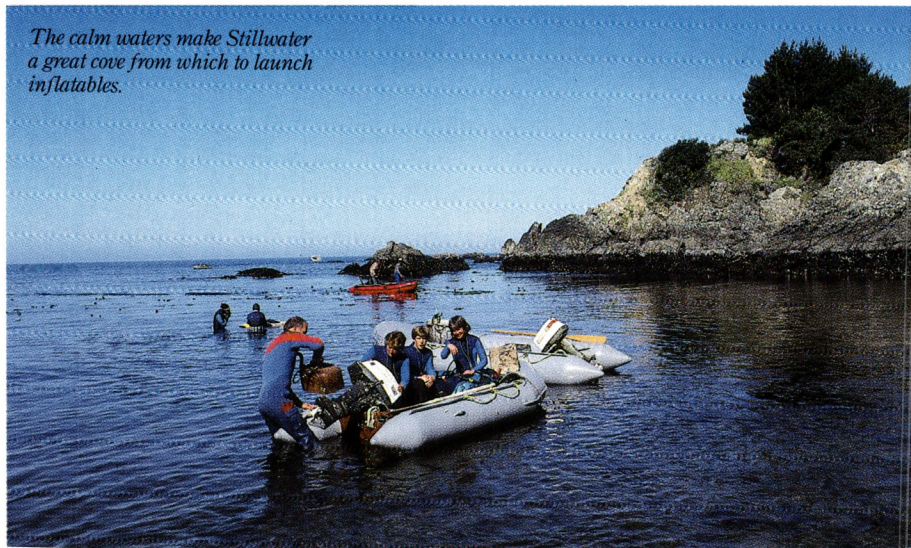
the North Coast. Here, on a calm day, even beginning divers can find eight-inch abalone in 10 to 15 feet of water. The area is covered with palm kelp so sometimes it takes a bit of searching, but the population of legal-sized red abalone (*Haliotis rufescens*) is quite large.

The area just south of the rocks has a good population of eight- to nine-inch abalone in 25 to 40 feet of water, but few

fish. The bottom is dotted with red, fish-eating anemones (*Telia crassicornis*) in deeper water and the giant green anemone (*Anthopleura xanthogrammica*) in the shallows. Many colorful nudibranchs such as the purple Spanish shawl and the orange and white *Hermisenda crassicornis* also adorn the bottom.

It's a half-mile swim to the Caldron from the main cove, and some instructors have

The calm waters make Stillwater a great cove from which to launch inflatables.



their classes swim there for exercise. Most divers, however, get there either by inflatable boat or dive board, or by hiking down from the bluff. On calm days this is an excellent place to dive, but the area gets quite rough when the waves pick up. The conditions can change rapidly, so if you hike down the trail, be prepared to swim into the main cove if the swell picks up to the point where you can't get back to where you entered the water.

CEMETERY REEF IS THE PLACE FOR LINGCOD

South of Stillwater Cove, about halfway to Timber Cove and 400 yards offshore, is an area known as Cemetery Reef. This L-shaped reef was named for the cemetery on the bluff overlooking the reef. It can be easily located in early spring through early winter by the thick kelp bed. The reef's flat top in 20 to 30 feet of water is home to an assortment of above-average abalone and a dense layer of palm and bull kelp. The sides drop almost vertically to about 50 feet and then continue down to 130 feet at a more gradual rate. Orange and yellow encrusting sponges and strawberry anemones in hues of red, orange and lavender carpet many of the rock faces while white metridiums cover others. The colorful rock walls are good for both macro and wide-angle photography.

Stillwater Cove Fish & Game Regs **ABALONE**

Limit: four in a combination of all species.

Size: (measured in greatest shell diameter) — reds, 7"; greens, pinks and whites, 6"; blacks, 5"; all others, 4".

Open Season: April, May, June, August, September, October and November.

Fishing hours: ½ hour before sunrise to ½ hour after sunset only.

LINGCOD

Limit: five.

Size: 22" total length.

Season: Open year-round.

Cemetery Reef is one of the best areas for large lingcod, and it has better than average visibility due to the strong currents that are almost always running. Because of this, you should make sure that your boat is securely anchored; the strong currents have been known to set poorly anchored boats adrift, and it is a long swim back to shore. If possible, leave someone in the boat while you're diving Cemetery Reef.

Stillwater Cove is part of Sonoma County's Stillwater Cove Regional Park. There is no parking at the cove, but there is a gear drop area 150 feet from the beach. Cars are not allowed on the paved path

between the drop site and the beach, so if you have an inflatable boat it is best to have wheels for it. Day use parking is available in the lot on the hill above the cove (for a fee) or in the turnouts on the north and south sides of the cove (free of charge), although park rangers are currently discouraging divers from parking in the turnouts.

Of course, you can always stay at the old boys' school, now called Stillwater Cove Ranch. They no longer give riding and fishing lessons, but you can sleep in the old cook house or in the "cow barn," now redecorated to handle guests. This is a charming place to stay; it offers a rustic setting, and history buffs will enjoy looking through the selection of photographs and documents from the school days.

Unfortunately, it is no longer possible to send your children to Stillwater Cove for the summer, but it is still a good place to take them for a weekend or even a week. The cove offers calm water, good fishing and unlimited potential for photography, both above and below the water. Who could ask for more? ☐

Bruce Watkins is a free-lance writer and photographer based in Northern California. He is currently a senior biomedical scientist at the University of California, Livermore.



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A LIGHT FOR ALL REASONS

Just in time for bug season, here's a look at the latest in dive lights for hunting, night diving and just plain poking around.

In a small way, lights have revolutionized the way we dive. Whether it's daytime or nighttime, diving with a light brings out more vivid colors and enables us to light up those cracks and crevices where all the critters are hiding.

There are three basic types of underwater dive lights: the small back-up light that can be clipped to a weightbelt or tucked inside a BC pocket and is used for day diving or as a second light for night diving; mid-range lights, which are just more compact versions of the big dive lanterns; and the heavy-duty lights used primarily for night diving.

Back-Up and Mid-Range Lights

These lights are small, compact and powerful. Beam spread is generally narrower than the larger lights, making them excellent choices for peeking beneath dark ledges during the day and acting as secondary lights for night diving and wreck diving. In clear waters, like in the tropics, these pocket lights are often used as primary night diving lights; however, keep in mind the beam on these lights does resemble more of a "spot" than a "flood."

SHERWOOD'S SHERLITE MKI

Manufactured by Pelican Products for Sherwood, the MKI sports a xenon-filled lamp, a lanyard, a belt clip and a stainless



The complete Bottom Timer kit includes a lifetime warranty.

steel split ring for clipping to D-rings on weightbelts and BCs. The MKI uses three "C" batteries. It's most popular feature is its high-intensity spotlight beam. The batteries offer a burn time of three to five hours. The light retails for approximately \$26.

PRINCETON TECTONICS' BOTTOM LIGHT

The Bottom Light comes as a complete kit, which includes four alkaline "C" batteries that pack up to five hours of continuous burn time, a spare krypton bulb, a wrist lanyard and a lifetime warranty. The case is made of Lexan and is waterproof to 300 feet. The Bottom Light is available with either krypton or halogen bulbs, both of which provide over 15 hours of use. The light retails for about \$36.



The most interesting feature of the King Pelican is its reversible grip.

PELICAN'S SUPER PELILITE

Constructed of high-impact Lexan and ABS resin, Pelican Products claims the light will maintain its watertight integrity down to 2,000 feet (we'll have to take the company's word for that). The Super PeliLite features a 30-hour xenon lamp and a highly effective reflector module. A simple twist of the bezel turns the light on or off. The Super PeliLite also comes with an adjustable polypropylene lanyard and molded slots to accommodate velcro straps. The Super PeliLite retails for about \$30.

IKELITE'S MINI C LITE

The Ikelite Mini C is a versatile light that can be used for day or night diving. It is powered by four "C" batteries that provide up to six hours of use. Ikelite claims its halogen bulbs are superior to most krypton, argon and xenon bulbs. The bulbs burn for approximately 15 hours. The Mini C retails for about \$31.95.

UNDERWATER KINETICS' Q SERIES

Many years ago, Underwater Kinetics came out with its small yet powerful Super Q Lite. Although the original Q Lite is no longer part of the UK line, its legacy remains in the form of the Mini Q4 and Q3. These compact lights feature a narrow yet intense beam. The Q4 uses four "AA" batteries and burns for over four hours.

To Recharge, or Not to Recharge

Both methods of supplying power to your underwater light have their own unique advantages and disadvantages:

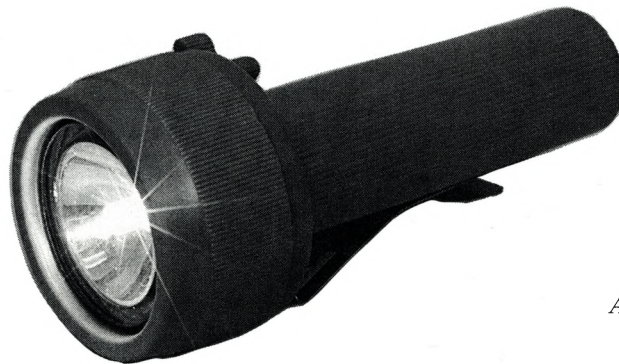
- * Non-rechargeable lights generally burn longer.
- * Rechargeable lights burn brighter, but for shorter periods of time.
- * Rechargeable lights require more battery changes and are often heavier.
- * When used often, nonrechargeable batteries are less cost-effective.



*Underwater Kinetics'
new UK400.*



*Top: Darrel
Allan's Bug Diver
400, an old
favorite. Left:
Ikelite's Mini C
with a halogen
bulb.*



The Q3 uses three "C" batteries and offers a slightly longer burn time while almost doubling its watt output. Both lights are powered with xenon bulbs.

From the basic Q Series comes the four "C" battery-powered Q40, the rechargeable Q40R and the six "C" battery-powered Q60. While the burn times (except for the rechargeable versions) are similar to those offered by the smaller lights in UK's line, watt output is nearly doubled, creating some intense lighting in a compact package. Q Series prices range from \$30 to \$100.

OCEANIC'S HYLITE

The Oceanic Hylite is a small dive light that uses three "C" batteries and sports the option of a rechargeable power source. Utilizing a quartz-halogen lamp, the eight-inch-long Hylite resembles a slightly longer version of Pelican Products' Super PeliLite. Battery burn time is four to five hours. The Hylite retails for \$39.95.

(Mid-Sized Models)

PELICAN PRODUCTS' SWATLITE

Utilizing a totally different design in mid-sized lights, Pelican's SwatLite is made of a high-impact, shock-resistant resin rather than aluminum (Pelican Products claims that the light is operational to as deep as 2,000 feet). Perhaps the major advantage to the SwatLite is its variable beam; the light has a high and low power setting and features a focus beam that allows you to dial in the proper beam angle

from a wide flood to an intense spot.

Using four "C" batteries, the lamp features a dual filament which, according to Pelican, lasts 250 hours (that's the lamp, not the batteries) and a high power filament with 30 hours of burn time. Battery burn time is six hours at 25,000 candlepower. The SwatLite retails for about \$50.

SHERWOOD'S MKII

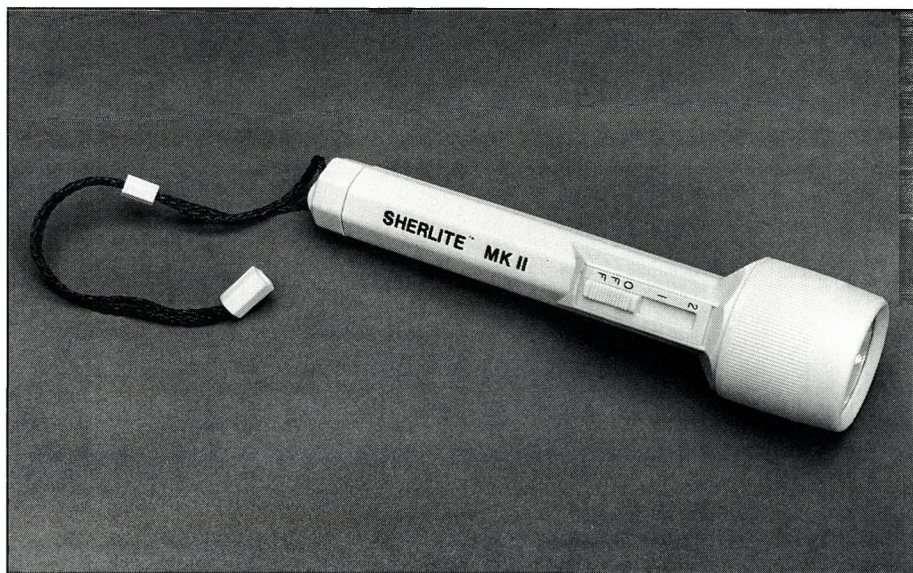
Manufactured for Sherwood Scuba by Pelican Products, the technical specs are the same as that of the Pelican SwatLite, and both units are comparably priced.

TEKNA'S DIVE LANTERN

Tekna is well known for innovation in equipment design, and its four "D" battery-powered Dive Lantern is no exception. Weighing only four pounds, the Dive Lantern provides up to five hours of continuous burn time and the grip can quickly be converted from lantern-style to pistol-style. The Dive Lantern retails for approximately \$44.95.

UNDERWATER KINETICS' UK 400

This is the newest large light in the Underwater Kinetics family. The UK 400 features a xenon-filled bulb, a rugged space-age plastic body and "dimpled" reflectors which widen and brighten the light beam. Four "D" batteries burn for seven to 10 hours. The UK 400 retails for approximately \$49.95.



Sherwood's Sherlite MKII features a dual filament bulb that will burn for 250 hours.

STEVE ESSIG

Continued

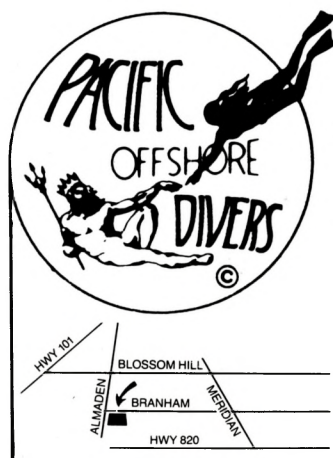


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Pelican's SwatLite has high and low power settings and a focus beam for dialing in the proper beam angle.

The Big Daddies in Dive Lights

These lights are commonly used for night diving, shipwreck penetration and cavern diving where the only light sources you have are what you bring with you. Some photographers are mounting these howitzers to the base plates of their cameras for easier focus and composition as well as for diving in darker areas like shipwreck interiors. There are numerous lights in this category and since there is not enough space to look at each one individually we will focus on the highlights of several major models.

DACOR'S UL850 & UL750

Dacor's large rechargeable UL850 and nonrechargeable UL750 lights offer 100,000 candlepower with up to two continuous hours of burn time. Bulb life averages 10 to 20 hours. While both lights are powered by six-volt cells, the most interesting thing about Dacor's lights are their unique accessories.

For example, Dacor makes available a rubberized compass boot that mounts on top of the light itself. Point the light in the direction you want to travel and the compass is easily readable. Dacor also offers snap-on amber and red lenses. The UL850 and UL750 carry retail prices of \$115 and \$60, respectively.

DARREL ALLAN'S BUG DIVER 400

All old-time lobster hunters are probably familiar with this light. This big,

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yellow, cumbersome cast aluminum monster is still a favorite.

The Bug Diver 400 is a heavy light, and it takes 10 "D" batteries to operate. But many zealous lobster grabbers like the fact that it's so heavy, because even in heavy surge they can lay the light down pointed at a glory hole full of bugs. Battery burn time ranges from three to five hours. The bulb is a standard PR 13, although a long-life version is available. The light retails for about \$90.

OCEANIC'S OCEAN PRO 101

The Ocean Pro 101 is a rechargeable sealed beam dive light. A heavy plastic screw-down bezel presses the sealed beam against a large rear O-ring, creating an effective pressure seal. A six-volt gel cell battery is charged through an external rear charging port. If you want, the battery can be removed from the front of the light and charged independently while a spare gel cell is installed in its place. The Ocean Pro 101 provides approximately three hours of burn time and retails for about \$112. A less expensive nonrechargeable version, the Ocean Pro 100, operates on a single six-volt lantern battery.

PELICAN PRODUCTS' KING PELICAN

This is Pelican's newest dive light. Incorporating a large 12 volt system, the King Pelican requires the use of eight "D" batteries that provide up to eight hours of continuous burn time while a xenon-halogen lamp offers up to 60 hours of bulb life. But perhaps the King Pelican's most versatile feature is its reversible grip which slides onto the light in a horizontal position for a lantern grip configuration or vertically for a pistol grip, with the mere push of a button. Nonrechargeable, the King Pelican retails for approximately \$60.

UNDERWATER KINETICS' UK 1200

This is Underwater Kinetics' most powerful nonrechargeable dive light. Powered by eight "D" batteries for over seven hours continuous burn time, its combination xenon-halogen lamp packs incredible brightness for a nonrechargeable dive light. It is available with a pistol and lantern grip. For photographers, Underwater Kinetics manufactures a tripod mount for the light that bolts onto the base plate of a camera housing or tray. The UK 1200 nonrechargeable retails for about \$75, and the rechargeable version runs close to \$200.

When diving conditions are a bit on the dark side, a reliable light becomes a diver's best friend. So regardless whether you need a small hand-held unit for poking around in the rock piles or a big gun for night diving, there are a variety of excellent lighting systems. □



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Gargoyles of the Deep

Looking like something out of a nightmare, knowledgeable divers give members of the stonefish family the respect they've so painfully earned.

Like demons of Gothic mythology, most scorpionfish look like something out of a nightmare. They resemble creatures Quasimodo might have known while scrambling among the gargoyles of Notre Dame's bell tower. If the infamous hunchback had been a diver, he would have felt right at home among these Indo-Pacific fish species. Their names alone evoke a sense of malevolence: warty ghouls, goblinfish, firefish, sea pig, death's head scorpionfish. Even scientific names — usually objective and dispassionate — take on a macabre tone when applied to one of the stonefish species, *Synanceia horrida*. Knowledgeable divers give these creatures as much respect as they give sharks.

Although some, like the stonefish, are among the ugliest in the ocean, other Scorpaenidae, like the lionfish, are among the most beautiful. And many are so well camouflaged they are virtually invisible. Most are negatively buoyant, sluggish swimmers, hovering just off the bottom or lying motionless until they can ambush unwary prey. But they all share one characteristic: their spines can deliver a deadly venom. For most marine animals, and sometimes even for

human beings, an encounter with a scorpionfish can be a death sentence.

There are three general types of fish belonging to the family Scorpaenidae: stonefish (*Synanceia* type), lionfish (*Pterois* type) and true scorpionfish (*Scorpaenopsis* type). Lionfish and stonefish are limited to the tropical Indo-Pacific region, ranging from Hawaii to Africa. True scorpionfish are found in temperate as well as tropical waters in nearly all oceans of the world.

There are several good reasons for divers to become acquainted with scorpionfish. An obvious one is to avoid injury. But beyond that, these fish are some of the most fascinating animals in the sea, not only because of

The poison of a stonefish is deadlier than that of cobra.



But on close observation, this rock wears a frown. The downturned mouth is the tip-off that this is a stonefish. It can attain a length of one and a half feet, and weigh three pounds or more.

To the small fish and crustaceans that are its prey, failure to recognize the stonefish is invariably fatal. With

a sudden opening of its mouth, the stonefish creates a suction that draws in water and the prey along with

it. It can suck in a fish nearly as large as itself.

With poison deadlier than that of a cobra, stonefish are the most venomous fish in the world. For humans, a sting can result in excruciating pain, long-term disability and even death.

However, they are not very common. It was my fourth trip to the Red Sea before I first recognized one in open water. Since then, realizing where and how to look for them, I have seen only three or four others. These are sedentary, slow-moving fish, about as graceful as Jabba the Hut. If you poke one with a snorkel or a piece of coral, it will move awkwardly about a foot or so, then settle down again. Obesity and negative buoyancy make swimming an effort, so they are rarely observed off the bottom.

Stonefish are generally found in shallow, sandy areas, on reeftops, or buried in sand. They also like to hide in crevices within the coral. Their rough, bumpy skin blends in almost perfectly with the background. Lacking the scales and mucous covering of most fish species, the skin is protected in an unusual way. Because the stone-

fish is so sedentary, reef organisms settle and eventually grow on its skin. These may include algae, crustaceans, worms or even tiny soft corals. Algae is rarely seen in the tropical Pacific because grazing fish crop it before it has a chance to grow. But no fish would be foolhardy enough to graze from the chin of a stonefish. Consequently, some stonefish wear an algae beard.

All this growth contributes to the camouflage effect. Eventually, when it becomes too thick, the stonefish sheds its outer layer of skin like a snake. A freshly molted stonefish is bright pink for awhile, until a new set of organisms begins to settle.

A stonefish's weaponry consists of 13 dorsal spines, three anal spines and two pelvic spines. (It's not only the ones along the back that do the damage.) Each of these short, stout spines is covered with loose skin, the integumentary sheath, and has a pair of venom glands located about midway between its base and tip. The spines are sharp and strong enough to penetrate a wetsuit. Pressure discharges the venom, which flows through a duct and along a slot in the spine into the victim's body.

The first sign of a sting is immediate, intense, excruciating pain. Beginning at the wound site, it quickly spreads along the affected limb. Pain has been described as so intense that the victim thrashes about wildly, screaming in agony, and may lose consciousness. An especially vivid first-person account was written by the renowned South African ichthyologist J.L.B. Smith, the man who described the first coelacanth (any of a family of mostly extinct fish). Despite his anthropomorphic imagery (he calls it a "repulsive creature") and his British stiff upper lip, a reader can almost feel the anguish of the stricken scientist.

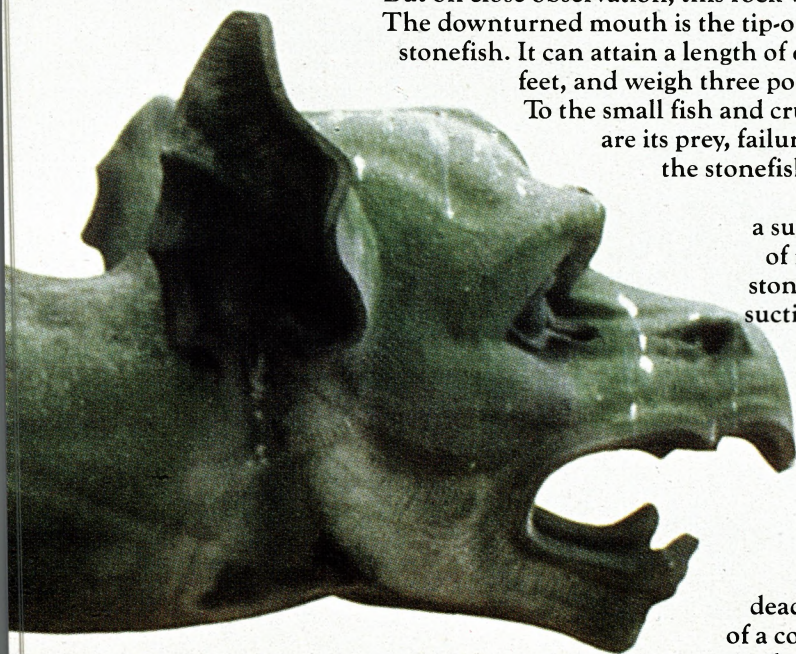
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the danger, but also because of their exquisite adaptation to the environment. Observing them can make your diving experience more exciting and meaningful. Let's look at some examples of the family Scorpaenidae and find out what makes them noteworthy.

STONEFISH: FEARSOME, YET FASCINATING

The first stonefish (*Synanceia verrucosa*) I ever saw was in Scripps Aquarium, La Jolla, California. Even though a label on the tank identified the creature, it was a minute or so before I realized that one of the rocks in there was alive.

This fish is aptly named. It looks like a rock covered with marine growth.



Smith was stung in the thumb by a stonefish he had collected for study. He relates, "During my life I have endured a good deal of severe pain, but nothing comparable with this appalling agony. The sweat literally poured from my body and dripped to the floor. I could hardly see." His hand swelled rapidly; he tried to fill a syringe with painkiller but dropped the vial, smashing it on the floor. "...With this incredible agony undiminished, half-fainting I staggered about, unable to keep still... My wife gave me an injection of morphia. After some time this diminished the sweating and made me sleepy, but had no effect whatsoever on the pain. About three hours after the stab, my wife decided to try hot water, and within one minute of immersing the hand the effect was dramatic. The agony was reduced to just a bad pain..."

"In the morning, glad to be alive, I found my swollen hand and arm an awful sight. The thumb had gone black about the stab. Large painful blisters of yellow serum formed and, when punctured, dripped continuously for days."

Infection followed, eventually controlled with antibiotics. After a month, the hand and thumb were still swollen; the black parts began to fall away, leaving pink scars. "...The site of the stab was still an open sore that did not heal finally until 50 days after the stab... The hand remained weak for several years. The toxin has a most depressing effect and made old wounds and weak spots ache, much like an acute rheumatic attack... so much hellish agony lies locked up in those spines."

Although occasional human deaths have been reported from stonefish stings, they are the exception rather than the rule. Death is usually the result of anaphylactic shock, or long delays in obtaining aid. The very young, the old and the sick are most likely to die. Heat breaks down the unstable protein of the venom and the sooner treatment begins, the better. Immerse the wounded area in water as hot as the victim can stand, and relief is almost immediate. Water may be as hot as 120 degrees F. and treatment should be continued for 30 minutes. Be careful that scalding does not occur. As in snakebites, a constricting band can help keep the venom localized. This should be a soft cloth, about one inch across, tied snugly, but loose enough so a finger may be slipped underneath it. The band should be located about three to five inches above the wound, but not around a joint. Transport the victim with the wounded limb below the level of the heart. The person should be treated for shock and quickly brought to a medical care facility. An

antivenin has been developed which neutralizes all effects of stonefish venom, if it is administered quickly enough.

Stonefish are found throughout the South Pacific, all the way to Australia. Wearing hard-soled dive boots and shuffling your feet when walking over reef flats will warn the fish of your presence and give them an opportunity to move. Don't put your hands in crevices without looking carefully. If you see a stonefish, don't attempt to handle it even with a gloved hand. Use a knife, snorkel, or a piece of coral if necessary to tease the fish into a better viewing or photographic position.

LIONFISH: INDO-PACIFIC'S LIVING TREASURE

Unlike its homely cousin, the exquisite lionfish is one of the living treasures that epitomizes the Indo-Pacific region. It goes by many names, including turkeyfish (because of its spectacular display of



The poison of a lionfish is not as strong as that of a stonefish, but swelling and secondary infection are common.

plumage), zebrafish (because of its striped pattern) and firefish (because of the effects of the sting). The two most common species are *Pterois volitans* and *Pterois radiata*.

A lionfish has an imperial demeanor, hovering majestically around the reef, gracefully swaying its lacy fins like medieval battle flags. Upon initial approach, it is likely to turn its back on a diver. But instead of fleeing, it stands its ground and erects its venomous dorsal spines. This defensive posture is typical but frustrating for the underwater photographer. Eventually, if no threatening movements are made, it will relax, show a profile, and perhaps even a head-on view.

In the evening on the shallow sand flats

of Naama Bay in Sinai, we observed a number of lionfish hovering over their holes in the bottom, waiting for dinner. To unwary prey at twilight, their irregular banding can look like floating seaweed. Their coloration may take on a greenish hue over sea grass beds, or change to an overall bronze over a reef environment. I've never seen one strike in the wild, but in aquariums they show surprising bursts of speed as they pounce on a victim and virtually inhale it. They have also been observed using their long, delicate pectoral fins like arms or nets to corner their prey.

The venom apparatus consists of 13 dorsal spines, three anal spines and two pelvic spines. They are long and slender, with grooves ducting toxin from the venom glands. The fish is capable of turning suddenly and striking its victim, usually with the dorsal spines. Venom flows along the groove of the spine, causing immediate searing pain that quickly radiates from the wound site. The poison is not as strong as that of the stonefish, and fewer human deaths have been reported. But localized tissue destruction, swelling and secondary infection are common. Systemic symptoms are not as severe as a stonefish sting, but may include fainting, nausea, gastrointestinal disturbances, fever and depressed pulse and respiration. A long, extended convalescence period is not uncommon.

The preferred treatment is the same as for other venomous fish stings: hot water. Australian diver-physician Carl Edmonds also recommends a small incision across the wound, parallel to the long axis of the limb. Weak solutions of potassium permanganate, ammonia, or acidic substances can also break down the venom and relieve pain.

Don't let exaggerated fear deprive you of the experience of watching these exotic fish. To avoid problems, exercise caution around them. Don't make sudden threatening movements that could cause a panic response. Just enjoy their company and play the role of respectful visitor.

SCORPIONFISH: MORE NUMEROUS, LESS HARMFUL

True scorpionfish are more widespread throughout the world's oceans, ranging from the tropics to cool temperate waters. There are more species of scorpionfish than any other member of the Scorpaenidae family. The effect of their venom also varies widely, but is less potent than that of lionfish or stonefish. Symptoms are usually restricted to localized pain; systemic involvement is rare.

Scorpionfish are generally slow-moving, bottom dwelling fish with an uncanny ability to change color to match their

Common to northern Pacific waters, there are more species of scorpionfish than any other member of the Scorpaenidae family.

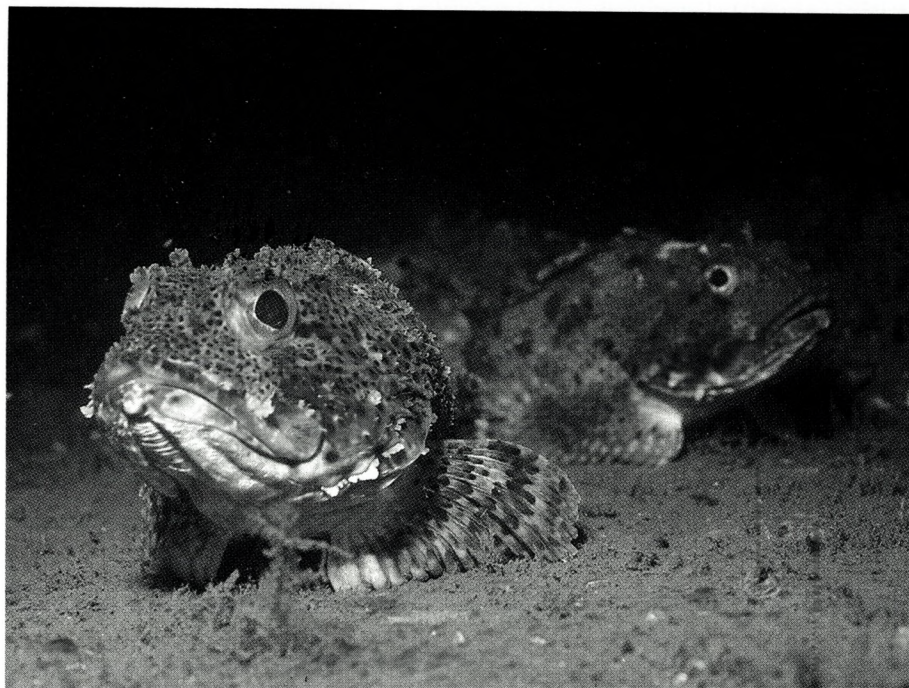
environment. *Scorpaena guttata*, which inhabits the coastal waters of California, is a good example. Its common name is the California sculpin, which is confusing. There are sculpins found in these waters, but they are not all related to *Scorpaena guttata*, which is an authentic scorpionfish and usually a mottled brown, matching the algae-covered rocks on which it lies. But at Farnsworth Bank, on the back side of Catalina Island, I once photographed a specimen resting on a multi-colored background of red corynactis anemones, purple coral and yellow zoanthid anemones. This was a challenge for any camouflage specialist, but *Scorpaena* was more than equal to the task. In the photograph, you have to look hard just to make out its eye; the outline of the fish is virtually invisible.

Fortunately, the California sculpin is a lightweight in the venom department. Consequences of its sting are throbbing localized pain which lasts only a few hours, or less if heat is administered right away.

Scorpionfish are excellent examples of adaptation in nature. Their camouflage ability and venom apparatus more than compensate for their slow swimming and relatively small size. Other animals seem to be aware of their deadly defense and leave them pretty much alone. The ones that don't usually wind up as dinner. Those

factors have combined to make these unique fish an extremely successful family of organisms over millions of years. □

Eric Hanauer is an associate professor of physical education at California State University, Fullerton, and a longtime NAUI instructor. He is the author of The Egyptian Red Sea: A Diver's Guide.



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DIVE BOAT SCHEDULES

MONTEREY

Cypress Sea, 408/244-4433

Breakwater Cove Marina
50/20 Divers/Capt. Tim Smith
All trips to Monterey/Carmel areas.
Available daily.

September:

- 1 Steele's Dive Store,
415/682-5082
- 2 Any Water Sports,
408/244-4433
- 3 Anchor Shack, 415/825-4960
- 8 Divemasters, 415/969-7782
- 9 Any Water Sports,
408/244-4433
- 15 Wallin Dive Store, 415/369-2131
- 16 Anchor Shack, 415/825-4960
- 22 Ocean Odyssey, 916/758-3483
- 23 Fremont Scuba, 415/438-9196
- 29 Any Water Sports,
408/244-4433
- 30 Any Water Sports,
408/244-4433

Silver Prince, 408/394-4235

Monterey Wharf II 40/15 Divers/Capt.
Gary Goulart
Call number above for open boats.
Operates on weekdays upon request.

September:

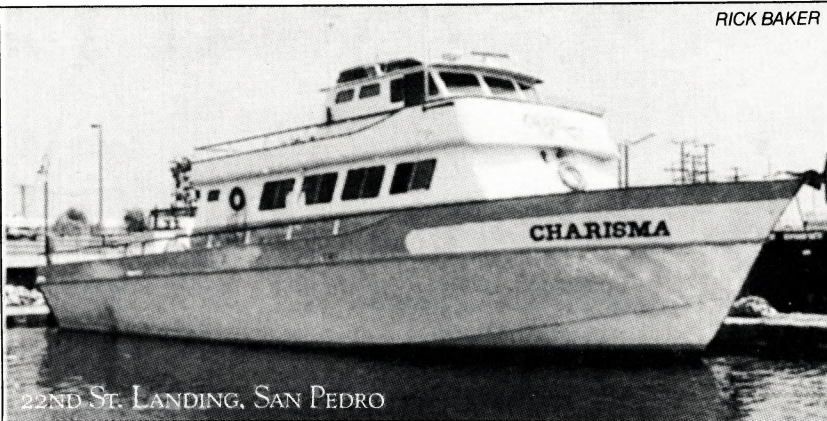
- 1 A.M. Pinnacles Dive Center,
415/897-9962
- P.M. Scuba Plus, 209/957-2822
- 2 A.M. Get Down Divers,
408/438-3795
- 3 All Day: Monterey Sunfish,
408/294-4235
- 7 A.M. Open Boat
- 8 A.M. San Francisco Reef
Divers, 415/387-2604
- 9 A.M. Rohmert Park Dive Center,
707/584-2323
- 14 A.M. Open Boat
- 15 A.M. Undersea Adventures,
415/838-2348
- P.M. Pacific Offshore Divers,
408/265-3483
- 16 A.M. Scuba Town, 415/939-3483
- 21 A.M. Open Boat
- 22 A.M. Monterey Bay Sea Otters
- 23 A.M. Stan's Dive Shop,
408/998-0767
- P.M. Olympic Dive & Travel,
415/933-6045
- 28 A.M. Open Boat
- 29 A.M. Bamboo Reef,
415/362-6694
- 30 A.M. Valley Aquatics,
209/527-2822

October:

- 5 A.M. Open Boat
- 6 A.M. Pinnacles Dive Center,
800/223-4837
- 7 A.M. Valley Skin & Scuba,
209/333-2343
- P.M. Olympic Dive & Travel, staff
- 8 A.M. Open Boat
- 12 A.M. Open Boat
- 13 A.M. Undersea Adventure,
415/838-2348
- P.M. Pacific Offshore Divers,
408/265-3483
- 14 A.M. Get Down Divers,
408/438-3795
- P.M. Olympic Dive & Travel,
415/933-6045
- 19 A.M. Open Boat
- 20 A.M. Valley Aquatics,
209/527-2822
- P.M. Undersea Adventures,
415/838-2348
- 21 A.M. Scuba Town, 415/939-3483
- 26 A.M. Open Boat
- 27 A.M. Bamboo Reef,
415/362-6694
- P.M. Night Dive: PDC/Connie,
415/965-8302
- 28 A.M. Stan's Dive Shop,
408/998-0767
- P.M. Scuba Plus, 209/957-2822

November:

- 3 A.M. Pinnacles Dive Center,
415/897-9962
- 4 A.M. Valley Skin & Scuba,
209/333-2343



22ND ST. LANDING, SAN PEDRO

RICK BAKER

- P.M. Olympic Dive & Travel,
415/933-6045
- 9 A.M. Open Boat
- 10 A.M. Bamboo Reef,
415/362-6694
- 11 A.M. Get Down Divers,
408/438-3795
- P.M. Olympic Dive & Travel,
415/933-6045
- 17 A.M. Undersea Adventures,
415/838-2348
- P.M. Pacific Offshore Divers,
408/265-3483
- 18 A.M. Scuba Town, 415/939-3483
- 23 A.M. Open Boat
- 24 A.M. Open Boat
- 25 A.M. Valley Aquatics,
209/527-2822

Xeno, 408/426-7376

38/6 Divers/Capt. Jon Capella
Available seven days a week.

SANTA BARBARA

Conception, 805/962-1127, 805/963-3564

Sea Landing Breakwater
75/40 Divers/Capt. Jerry Boylan

September:

- 4-6 Available for Charter,
805/962-1127
- 7-8 Wet Pleasure, 408/984-5819
- 9-11 Marin Skin Diving, 415/479-4332
- 12-13 Available for Charter,
805/962-1127
- 14-15 Dave Faught, 408/446-5416
- 16-18 Moose Lodge Dive Tours,
408/446-4074
- 20-22 Cal School of Diving,
415/644-2373
- 23-24 Dive West, 805/925-5878
- 28-30 Bill Finstad, 408/426-2498

October:

- 3-6 Ocean Odyssey, 408/475-3483
- 7-9 Discovery Charters,
818/790-8276
- 10-11 Any Water Sports,
408/244-4433
- 12-13 Desert Divers Supply,
702/438-1000
- 14-16 Lodi Valley Skin Diving,
209/333-2343
- 17 Open Boat, 805/962-1127
- 18-20 Tom Campbell's Dive & Travel,
805/965-4951
- 21-23 Undersea Adventures (1/2),
415/838-2348
- Pinnacles Dive Center (1/2),
800-223-4837
- 24 Open Boat, 805/962-1127
- 25-27 Aqua Adventures, 818/848-2163
- 28-30 Dolphin Scuba, 916/929-8188

November:

- 1-3 Stu's Scuba Tours, 415/686-6111
- 4-6 Stu's Scuba Tours, 415/686-6111
- 8-10 Dive Utah, 801/394-8842
- 11-13 Sea Horse Scuba Center,
707/552-8898
- 15-17 Just Another Great Dive,
415/688-4326
- 18-20 High Sierra Divers (1/2),
916/477-7642
- Dolphin Scuba (1/2),
916/929-8188

- 22-24 Aqua Adventures, 818/848-2163
- 25-26 San Diego UPS, 619/460-4611
- 30-12/2 Stu's Scuba Tours, 415/686-6111

Truth, 805/962-1127, 805/963-3564

Sea Landing Breakwater
68/40 Divers/Capt. Bill Yznaga
Call numbers above for open boats.

September:

- 1-3 Blue Fins Dive Club,
213/391-0948
- 5 Open Boat
- 6 Open Boat
- 7-8 Sea Sons (1/2), 714/735-3284
- BENT Dive Club (1/2),
213/375-7121
- 9-10 Hughes Dive Club,
213/324-8583
- 12 Open Boat
- 13 Open Boat
- 14-15 Cypress College, 213/424-9288
- 16-17 Stu's Scuba Tours, 415/686-6111
- 19 Open Boat
- 20-22 Stu's Scuba Tours, 415/686-6111
- 23-24 Dive 'n Surf, 213/372-8423
- 26 Open Boat
- 27-29 Ocean Funatics, 408/427-1620
- 30-10/2 Available for Charter,
805/962-1127

October:

- 3-4 Bill Finstad, 415/949-0344
- 5-6 Sea Sons, 714/735-3284
- 7-8 Saltwater Revival, 415/661-5540
- 9-11 S.F. D.R.T., 415/388-8124
- 12-13 Aqua Adventures, 818/848-2163
- 14-15 Wet Pleasure, 408/984-5819
- 16-17 UC Berkeley, 415/642-1298
- 18-20 Stu's Scuba Tours, 415/686-6111
- 21-22 Blue Fins Dive Club,
805/499-6929
- 23-25 Sheri Dizon, 408/272-5960
- 26-27 Sea Sabres, 213/947-0625
- 28-30 Fletche's Fantasies,
415/526-3352
- 31 Open Boat

November:

- 1-3 Stu's Scuba Tours, 415/686-6111
- 4-6 Scott Adams, 415/223-0203
- 7-8 Pete Kanaan, 415/728-5544
- 9-10 Pacific School of Scuba,
213/271-3999
- 11-12 Aquatics of Santa Barb.,
805/964-8689
- 14 Open Boat
- 15 Open Boat
- 16-17 Hughes Scuba Club,
213/324-8583
- 18-20 Aqua Divers, 916/671-3483
- 21 Open Boat
- 22-24 Wet Pleasure, 408/984-5819
- 25-27 Available for Charter,
805/962-1127
- 28 Open Boat
- 29 Open Boat
- 30-12/1 Undersea Adventures (1/2),
415/838-2348
- Half-Boat Available,
805/962-1127

Vision, 805/962-1127, 805/963-3564

Sea Landing Breakwater
90/40 Divers/Capt. Robbie Church

September:

- 6-8 Any Water Sports,
408/244-4433

- 9-11 Inter Ocean Tours,
415/444-5833
- 13-15 San Diego UPS, 619/560-5621
- 16-18 Scuba Discoveries,
415/777-3483
- 19-20 Orca Industries, 800/365-4913
- 21-22 Discovery Charters,
818/790-8276
- 23-24 Stu's Scuba Tours, 415/686-6111
- 25-27 Available for Charter,
805/962-1127
- 28-30 Stu's Scuba Tours, 415/686-6111

October:

- 1 Fundraiser Dinner Cruise,
805/962-1127
- 3-6 Bill Finstad, 415/949-0344
- 7-10 Adventure Sports,
408/458-3648
- 11-13 Stu's Scuba Tours, 415/686-6111
- 14-15 Flipper Dippers, 408/358-3995
- 16-17 Any Water Sports,
408/244-4433
- 18-20 Stu's Scuba Tours, 415/686-6111
- 21-23 Anchor Shack, 415/825-4960
- 24-25 Valley Scuba, 916/891-5041
- 26-27 Bill Finstad (1/2), 415/949-0344
- Dave Faught (1/2), 408/446-5416
- 28-30 Bamboo Reef, 415/362-6694

November:

- 1-3 Stu's Scuba Tours, 415/686-6111
- 4-6 Tom Campbell's Dive & Travel,
805/965-4951
- 8-10 Scuba Discoveries,
415/777-3483
- 11-13 Any Water Sports,
408/244-4433
- 15-17 Marin Skin Diving, 415/479-4332
- 18-19 Dive Shop of Santa Maria,
805/922-0076
- 20-21 UC Santa Cruz, 408/462-5409
- 22-24 Truth Aquatics Dive,
805/962-1127
- 25-27 Nautilus Dive Center,
916/624-3483
- 28-30 Howell's Dive Shop,
916/241-3979

VENTURA

Chieftain, 805/652-0321

Ventura Harbor
50/20 Divers/Capt. David Rentrow
Call number above for open boats.

September:

- 1 Anacapa: Gold Coast Scuba,
805/652-0321
- 2 Santa Cruz: Open Boat
- 8 Santa Cruz/Anacapa: Malibu
Divers, 213/456-2396
- 9 Santa Cruz: Ken Hoffman
- 12 Santa Cruz/Anacapa: Open
Boat
- 13 Santa Cruz/Anacapa: Open
Boat
- 15 Anacapa: Gold Coast Scuba,
805/652-0321
- 19 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 20 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 21 Santa Cruz: Open Boat
- 22 Anacapa: Gold Coast Scuba,
805/652-0321
- 23 Santa Cruz/Anacapa: Aqua

- Ventures, 805/484-1594
- 26 Night Dive: Open Boat
- 28 Santa Cruz: Open Boat
- 29 Santa Cruz/Anacapa: Aqua
Ventures, 805/484-1594
- 30 Anacapa: Gold Coast Scuba,
805/652-0321

October:

- 2 Anacapa/Night Dive: Aqua Ven-
tures, 805/484-1594
- 3 Santa Cruz/Night Dive: Gold
Coast Scuba, 805/652-0321
- 6 Santa Cruz/Anacapa: Malibu
Divers, 213/456-2396
- 7 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 10 Anacapa: Open Boat
- 12 Santa Cruz: Open Boat
- 13 Santa Cruz/Anacapa: Aqua
Ventures, 805/484-1594
- 14 Anacapa: Gold Coast Scuba,
805/652-0321
- 17 Anacapa: Open Boat
- 19 Santa Cruz: Open Boat
- 20 Anacapa: Gold Coast Scuba,
805/652-0321
- 21 Santa Cruz: Close Charter
- 24 Anacapa: Open Boat
- 26 Santa Cruz: Open Boat
- 27 Santa Cruz: Aqua Ventures,
805/484-1594
- 28 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 31 Anacapa: Open Boat

November:

- 2 Santa Cruz: Open Boat
- 3 Santa Cruz/Anacapa: Aqua
Ventures, 805/484-1594
- 4 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 7 Anacapa: Open Boat
- 9 Santa Cruz: Open Boat
- 10 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 11 Santa Cruz/Anacapa: Open for
Charter
- 14 Anacapa: Open Boat
- 16 Santa Cruz: Open Boat
- 24 Anacapa: Gold Coast Scuba,
805/652-0321
- 18 Santa Cruz: Closed Charter
- 21 Anacapa: Open Boat
- 23 Santa Cruz: Open Boat
- 24 Santa Cruz/Anacapa: Aqua
Ventures, 805/484-1594
- 25 Santa Cruz/Anacapa: Gold
Coast Scuba, 805/652-0321
- 29 Anacapa: Open Boat

Liberty, 805/642-1233

Ventura Harbor Village
85/40 Divers/Capt. Bill DeWitt
Call number above for open boats.

September:

- 2 Youngs Dive Shop,
213/424-4962
- 8 Open Boat
- 9 West Coast Divers,
818/708-8137
- 15 Open Boat
- 16 So. California Diving Center,
818/338-8863
- 22 Open Boat
- 23 Blue Cheer, 213/828-1217
- 29 Pt. Hueneme Aquatics,
805/984-3483
- 30 Marina del Rey Divers,
213/827-1131

October:

- 3 Pt. Hueneme Aquatics,
805/484-3483
- 6 Capt. Frog, 805/833-3781
- 7 Blue Cheer, 213/828-1217
- 13 West Coast Divers,
818/708-8137
- 14 Marina del Rey Divers,
213/827-1131
- 20 Santa Barbara Aquatics,
805/964-8689
- 21 West Coast Divers,
818/708-8137
- 27 Marina del Rey Divers,
213/827-1131
- 28 Pt. Hueneme Aquatics,
805/984-3483

November:

- 3 Innerspace Divers,
805/399-1425

DIVE BOAT SCHEDULES

RICK BAKER



VENTURA HARBOR VILLAGE

- 4 Blue Cheer, 213/828-1217
- 10 West Coast Divers, 818/708-8137
- 11 Marina del Rey Divers (1/2), 213/827-1131
- Desert Scuba (1/2), 714/948-8883
- 17 Open Boat
- 18 Pt. Hueneme Aquatics, 805/984-3483
- 24 Open Boat
- 25 Open Boat

Peace, 805/658-8286

Ventura Harbor Village
65/32 Divers/Capt. Bill Magee, Mike Roach

Call number above for open boats.

September:

- 2-4 World Sea Adventures, 916/487-7433
- 5 Anacapa: Open Boat
- 6 Santa Cruz: Open Boat
- 7-9 ASB Undersea, 415/485-1700
- 12 San Miguel: Open Boat
- 13 Santa Cruz: Open Boat
- 14-15 TRW, 213/372-7764
- 16-17 San Diego Shell Club, 619/792-5404
- 19 Santa Rosa: Open Boat
- 20 Santa Cruz: Open Boat
- 21-22 LA UPS, 213/545-0513
- 23-24 Pinnacles Dive Center, 415/697-9962
- 26 San Nicolas: Open Boat
- 27 Santa Cruz: Open Boat
- 28-29 5 Star Instructional Group, 213/456-3483
- 30-10/1 Island Packers, 805/642-1393

October:

- 3 Lobster Season Opener: Malibu Divers, 213/456-2396
- 4-6 Ken Snodgrass, 415/449-4736
- 7 Stu's Scuba Tours, 415/686-6111
- 10 Talcott Bank: Open Boat
- 11-13 Anderson's Dive Shop, 415/355-3050
- 14-16 Stu's Scuba Tours, 415/686-6111
- 17-18 T.A. Skinner, 805/984-1224
- 19-20 5 Star Instructional Group, 213/456-3483
- 21-22 Antelope Valley Desert Divers, 805/947-0863
- 24 Talcott Bank: Open Boat
- 25-27 Sierra Dive Center, 702/825-2147
- 28-30 Pinnacles Dive Center, 415/697-9962
- 31 San Nicolas: Open Boat

November:

- 1-3 World Sea Adventures, 916/487-7433
- 4-6 Stanislaus Finmen, 209/634-6367
- 7 Santa Rosa: Open Boat
- 8-10 Scuba Shop, 303/988-6725
- 11-13 Anderson's Dive Shop, 415/355-3050
- 14 Santa Rosa: Open Boat
- 15-17 Anderson's Dive Shop, 415/355-3050
- 18-20 Don's Dive Shop, 707/763-7428
- 21 Santa Rosa: Open Boat
- 24-25 Santa Monica Bluefins, 805/499-6929
- 28 San Nicolas: Open Boat
- 30-12/1 San Nicolas: Open Boat

Scuba Luv'er, 818/346-4799

Ventura Harbor Village
65/34 Divers/Capt. Phil Bordini
Call number above for Scuba Luv' or open boats.

September:

- 1 Santa Barbara: Scuba Luv
- 2 Anacapa: Scuba Luv
- 5 Mid-Week Special: Scuba Luv
- 7 Anacapa: Scuba Luv
- 8-10 Closed Charter
- 12 Mid-Week Special: Scuba Luv
- 14-16 Closed Charter
- 19 Mid-Week Special: Scuba Luv
- 21 Shark Dive: Scuba Luv
- 22 Anacapa: Capt. Frog, 805/833-3781
- 23 Painted Caves: Scuba Luv
- 26 Mid-Week Special: Scuba Luv
- 28-29 Shark Dive: Scuba Luv
- 30 Santa Cruz: Scuba Luv

October:

- 3 Lobster Opener: Scuba Luv
- 4 Lobster Dive: Scuba Luv
- 5 Cavern Point: Scuba Luv
- 6-7 San Nicolas: Scuba Luv
- 10 Midweek Special: Scuba Luv
- 12 Shark Dive: Scuba Luv
- 13 Lobster Dive: Scuba Luv
- 14 Santa Cruz: Scuba Luv
- 17 Midweek Special: Scuba Luv
- 19 Anacapa Pinnacles: Scuba Luv
- 20 Santa Cruz: Scuba Luv
- 21 Shark Dive: Scuba Luv
- 24 Midweek Special: Scuba Luv
- 26 Shark Dive: Scuba Luv
- 27 Captain Frog, 805/833-3781
- 28 Closed Charter
- 31 Midweek Special: Scuba Luv

November:

- 2 Shark Dive: Scuba Luv
- 3 Anacapa: Scuba Luv
- 4 Santa Cruz: Scuba Luv
- 7 Midweek Special: Scuba Luv
- 9 Anacapa Arches: Scuba Luv
- 10 Day/Night Trip: Scuba Luv
- 11 Coastal Wreck Dive: Scuba Luv
- 14 Midweek Special: Scuba Luv
- 16 Shark Dive: Scuba Luv
- 17 Sport Chalet, 818/790-9800
- 18 Closed Charter
- 21 Midweek Special: Scuba Luv
- 23 Thanksgiving Special: Scuba Luv
- 24 Shark Dive: Scuba Luv
- 25 Lobster Dive: Scuba Luv
- 28 Midweek Special: Scuba Luv
- 30 Shark Dive: Scuba Luv

Spectre, 805/483-6612

Ventura Harbor Village
85/36 Divers/Capt. Ted Cumming
Call number above for open boats.

September:

- 1 Anacapa/Santa Cruz: Blue Cheer, 213/828-1217
- 2 Anacapa/Santa Cruz: Far West Marine, 805/495-3600
- 3 Santa Barbara: Channel Islands Scuba, 805/644-3483
- 7 Santa Cruz: Open Boat
- 8 Anacapa/Santa Cruz: Marina del Rey (1/2) 213/827-1131
- Capt. Frog (1/2), 805/833-3781
- 9 Anacapa/Santa Cruz: Scuba Duba, 818/881-4545
- 14 Anacapa/Santa Cruz: No Game Day, 805/483-6612
- 15 Santa Ana College, 714/693-8694
- 16 Anacapa/Santa Cruz: Blue Cheer, 213/828-1217
- 21 Outer Islands: Explorers Club, 805/483-6612
- 22 Anacapa/Santa Cruz: Desert Scuba, 805/948-8883
- 23 Anacapa/Santa Cruz: Santa Barb. Aquatics, 805/964-8689
- 28 Santa Cruz: Open Boat
- 29 Anacapa/Santa Cruz: Blue Cheer, 213/828-1217
- 30 Anacapa/Santa Cruz: Far West Marine, 805/495-3600

October:

- 2 San Nicolas: Far West Marine, 805/495-3600
- 5-6 San Nicolas: Channel Islands Scuba, 805/644-3483

- 7-9 Outer Islands: Santa Barb. Aquatics, 805/964-8689
- 11 Anacapa/Santa Cruz: No Game Day, 805/483-6612
- 12 Captain's Choice: Explorers Club, 805/483-6612
- 13 Anacapa/Santa Cruz: Desert Scuba (1/2), 805/948-8883
- Innerspace Divers (1/2), 805/399-1425
- 14 Anacapa/Santa Cruz: Far West Marine, 805/495-3600
- 19 Anacapa/Santa Cruz (Night): Scuba Duba, 818/881-4545
- 20 Anacapa/Santa Cruz (Day/Night): Blue Cheer 213/828-1217
- 21 San Nicolas: Channel Islands Scuba, 805/644-3483
- 26-27 Outer Islands: Openwater Habitat, 714/744-8355
- 28 Anacapa/Santa Cruz: Scuba Duba, 818/881-4545

November:

- 3 Anacapa/Santa Cruz: Santa Barb. Aquatics, 805/964-8689
- 4 Anacapa/Santa Cruz: Far West Marine, 805/495-3600
- 10 Anacapa/Santa Cruz: Blue Cheer, 213/828-1217
- 11 Santa Rosa: Channel Islands Scuba, 805/644-3483
- 16 Anacapa/Santa Cruz: No Game Day, 805/483-6612
- 17 Anacapa/Santa Cruz: Capt. Frog, 805/833-3781
- 18 Anacapa/Santa Cruz: Scuba Duba, 818/881-4545
- 23 Captain's Choice: Explorer's Club, 805/483-6612
- 24 Anacapa/Santa Cruz: Open Boat
- 25 Anacapa/Santa Cruz: Scuba Duba, 818/881-4545

CHANNEL ISLANDS

Sandy Bay, 213/828-2418

32/6 Divers/Capt. Bob Perry
Call for available dates.

PORT HUENEME

Sea Ventures, 805/985-1100

Sportfishing Landing
55/28 Divers/Capt. Mickey Defazio
Call for available dates.

SAN PEDRO

Atlantis, 213/831-6666

22nd St. Landing
65/35 Divers/Capt. Brian Dull
September:

- 1 Ski & Sport, 714/633-1880
- 2 Pasadena Scuba & Travel, 818/796-2000
- 3 Gary Hansen, 213/823-0790
- 8 Sport Chalet, 818/790-9800
- 9 Marina del Rey Divers, 213/827-1131
- 15 Sport Chalet, 818/790-9800
- 16 Sport Chalet, 818/790-9800

- 22 Sport Chalet, 818/790-9800
- 23 Pacific Sculpins, 213/494-2521
- 29 Sport Chalet, 818/790-9800
- 30 Available for Charter, 213/831-6666

October:

- 3 Ski & Sport, 714/633-1880
- 4 Pasadena Scuba & Travel, 818/796-2000
- 6 Sport Chalet, 818/790-9800
- 7 Sport Chalet, 818/790-9800
- 13 Sport Chalet, 818/790-9800
- 14 Sport Chalet, 818/790-9800
- 20 Pacific Sculpins, 213/494-2521
- 21 Black Barts Aquatics, 714/855-2323
- 27 Sport Chalet, 818/790-9800
- 28 Sport Chalet, 818/790-9800

November:

- 3 Sport Chalet, 818/790-9800
- 4 Ski & Sport, 714/633-1880
- 10 Sport Chalet, 818/790-9800
- 11 Black Barts Aquatics, 714/855-2323
- 17 B.E.N.T., 213/375-7121
- 18 Ski & Sport, 714/633-1880
- 24 Sport Chalet, 818/790-9800
- 25 Sport Chalet, 818/790-9800

Bold Contender,

818/366-2611

22nd St. Landing
65/34 Divers/Capt. Jerry Shapiro
Call for available dates.

Cee Ray, 213/519-0880,

213/867-9738

22nd St. Landing
65/32 Divers/Capt. Arnold Lancaster,
Tom Matlock
September:

- 1 Marina del Rey Divers, 213/827-1131
- 2 Catalina: Sport Chalet, 818/790-9800
- 3 Santa Barbara: Sport Chalet, 818/790-9800
- 8 Santa Barbara: Reef Seekers, 213/652-4990
- 9 Santa Barbara: Sport Chalet, 818/790-9800
- 15 Santa Barbara: Sea Sabres, 213/947-0625
- 22 Catalina: Sport Chalet, 818/790-9800
- 23 Marina del Rey Divers, 213/827-1131
- 30 Catalina: Sport Chalet, 818/790-9800

October:

- 3 San Ana Campers, 714/693-8694
- 5-6 San Ana Campers, 714/693-8694
- 7 Marina del Rey Divers, 213/827-1131
- 13 Catalina: Sport Chalet, 818/790-9800
- 14 Santa Barbara: Sport Chalet, 818/790-9800
- 20 San Nicolas: Sport Chalet, 818/790-9800
- 22 Catalina: Sport Chalet, 818/790-9800
- 27 San Nicolas: Sport Chalet, 818/790-9800
- 28 Marina del Rey Divers, 213/827-1131

November:

- 3 Star of Scotland: Sport Chalet, 818/790-9800
- 11 Santa Barbara: Reef Seekers, 213/652-4990
- 17 San Nicolas: Sea Sabres, 213/947-0625
- 18 Catalina: Sport Chalet, 818/790-9800
- 24 Sport Chalet, 818/790-9800

Charisma, 213/832-8304,

213/326-7460

22nd St. Landing
78/35 Divers/Capt. John Hess
Call for available dates.

Encore, 213/832-8304,

213/326-7460

22nd St. Landing
78/35 Divers/Capt. Randy Beaver
Call for available dates.

Golden Doubloon,

714/963-4378

22nd St. Landing
65/34 Divers/Capt. Greg Elliott
(Charters exclusively to Catalina.)
Call number above for open boats or charters.

September:

- 1 Open for Charter
- 2 Marina del Rey Divers, 213/827-1131
- 3 Open for Charter
- 5 Catalina/Backside: Open Boat
- 8 Black Barts, 714/496-5891
- 9 Aquatic Center, 714/650-5440
- 12 Catalina/Backside: Open Boat
- 15 Marina del Rey Divers, 213/827-1131
- 16 Black Barts, 714/496-5891
- 19 Catalina/Backside: Open Boat
- 22 Marina del Rey Divers, 213/827-1131
- 23 Aquatic Center, 714/650-5440
- 26 Catalina/Backside: Open Boat
- 29 Mr. Scuba, 714/838-6483
- 30 Local Wreck: California Wreck Divers

October:

- 2 Night Dive: Aquatic Center, 714/650-5440
- 3 Night Dive: Mr. Scuba, 714/838-6483
- 4 Night Dive: Open for Charter
- 5 Night Dive: Pacific Wilderness
- 6 Marina del Rey Divers, 213/827-1131
- 7 Sea to Sea
- 13 Mr. Scuba, 714/838-6483
- 14 Aquatic Center, 714/650-5440
- 20 Pacific Wilderness
- 21 Marina del Rey Divers, 213/827-1131
- 27 Open for Charter
- 28 Open for Charter

November:

- 3 Black Barts, 714/496-5891
- 4 Marina del Rey Divers, 213/827-1131
- 10 Open for Charter
- 11 Open for Charter
- 17 Open for Charter
- 18 Open for Charter
- 24 Catalina/Backside: Mr. Scuba, 714/838-6483
- 25 Open for Charter

Magician, 213/548-6129

22nd St. Landing
65/35 Divers/Capt. Ira Burdine
Call number above for open boats.

September:

- 1 San Clemente: Scuba Habitat, 714/594-7927
- 2 Catalina: Scuba Toys, 714/527-0430
- 8 Catalina: Sport Chalet, 818/790-9800
- 9 Catalina: Divers West, 818/796-4287
- 15 Catalina: Scuba Haus, 213/828-2916
- 16 Scuba Toys, 714/527-0430
- 22 Catalina: Sport Chalet, 818/790-9800
- 23 Catalina: Divers West, 818/796-4287
- 29 Catalina: Scuba Haus, 213/828-2916

Continued

DIVE BOAT SCHEDULES

30 Outer Island: American Diving,
213/326-6663

October:

- 3 Catalina/Night Dive: Scuba Toys, 714/527-0430
- 4 San Nicolas: Scuba Habitat, 714/594-7927
- 6 Catalina: Sport Chalet, 818/790-9800
- 7 Catalina: Scuba Toys, 714/527-0430
- 13 Catalina: Reef Seekers, 213/652-4990
- 14 Catalina: Scuba Haus, 213/828-2916
- 20 Catalina: Sport Chalet, 818/790-9800
- 21 Catalina: Divers West, 818/796-4287
- 27 Santa Barbara: Sea to Sea, 714/825-2502
- 28 Catalina: American Diving, 213/326-6663

November:

- 3 Santa Barbara: Scuba Habitat, 714/594-7927
- 4 Catalina: Scuba Toys, 714/527-0430
- 10 Catalina: Scuba Haus, 213/828-2916
- 11 Catalina: American Diving, 213/326-6663
- 17 Catalina: Sport Chalet, 818/790-9800
- 18 Catalina: Divers West, 818/796-4287
- 24 Catalina: Sea to Sea, 714/825-2502
- 25 Catalina: Open Boat

Maverick, 213/547-3824

22nd St. Landing
58/25-30 Divers/Capt. Floyd Bryan
Call number above for open boats.

September:

- 2 Catalina: West Coast Divers, 818/708-8136
- 16 Catalina: New England Divers, 213/421-8939
- 22 Catalina: Reef Seekers, 213/652-4990
- 23 Catalina: West Coast Divers, 818/708-8136

Scuba Queen, 213/821-8085

Cabrillo Marina
65/33 Divers/Capt. Bob Littlefield
Listed charters destined for Catalina.
Days not listed also available for charter.

September:

- 1 American Divers, 213/548-5324
- 2 Pacific Wilderness, 213/548-5324
- 8 Pasadena Scuba, 213/548-5324
- 9 Blue Cheer, 213/548-5324
- 15 Sea To Sea, 213/548-5324
- 16 Progressive Scuba, 213/548-5324
- 22 Pacific Wilderness, 213/548-5324
- 23 Sport Diving West, 213/548-5324
- 29 Available for Charter, 213/548-5324
- 30 Available for Charter, 213/548-5324

October:

- 2 Open Water Habitat, 213/548-5324
- 3 Sport Diving West, 213/548-5324
- 6 Pasadena Scuba, 213/548-5324
- 13 Open Water Habitat, 213/548-5324
- 14 Blue Cheer, 213/548-5324
- 20 California Wreck Divers, 213/548-5324
- 21 California Wreck Divers, 213/548-5324
- 27 West Coast Divers, 213/548-5324
- 28 Sport Diving West, 213/548-5324

November:

Call for available charters.

Westerly, 213/833-6048

22nd St. Landing
55/30 Divers/Capt. Jim Ingram
Call above number for open boats.

September:

- 1 Santa Barbara: Dive 'n Surf, 213/372-8423
- 2 San Clemente: Mr. Scuba, 714/838-6483
- 3 Catalina/Backside: Dive 'n Surf, 213/372-8423
- 8 Begg Rock: Douglas Dive Club, 714/960-2764
- 9 Catalina/Backside: Dive 'n Surf, 213/372-8423
- 14 Catalina Checkout: Dive 'n Surf, 213/372-8423
- 15 Begg Rock: Hughes Dive Club, 213/324-8583
- 16 Santa Barbara: Desert Divers, 805/948-6801
- 21 Catalina Checkout: Dive 'n Surf, 213/372-3483
- 22 San Clemente: Dive 'n Surf, 213/372-8423
- 23 Farnsworth Bank: Golden Reef Divers, 818/443-2103
- 29 Santa Barbara: Whalers Dive Club, 213/675-2123
- 30 Catalina/Backside: Dive 'n Surf, 213/372-8423

October:

- 3 San Nicolas: Dive 'n Surf, 213/372-3483
- 4 San Nicolas: Dive 'n Surf, 213/372-3483
- 6 San Nicolas: Dive 'n Surf, 213/372-3483
- 7 San Nicolas: Douglas Dive Club, 714/895-4076
- 10-12 San Nicolas: Larry McCarthy (1/2), 619/434-6546
- Harlan Bleeker (1/2), 213/547-9519
- 13 San Nicolas: Hughes Dive Club, 213/324-8583
- 14 San Nicolas: John Roodenberg, 213/536-0404
- 19 Catalina Checkout: Dive 'n Surf, 213/372-3483
- 20 San Nicolas: Douglas Dive Club, 714/895-4076
- 21 Catalina/Backside: Dive 'n Surf, 213/372-8423
- 23-24 San Nicolas: Barbara Tucker, 213/322-3140
- 27 San Nicolas: Dive 'n Surf, 213/372-3483
- 28 San Nicolas: Golden Reef Divers, 818/443-2103

November:

- 3 San Nicolas: Dive 'n Surf, 213/372-3483
- 4 San Nicolas: Mr. Scuba, 714/838-6483
- 10 San Clemente: Douglas Dive Club, 714/895-4076
- 11 Whalers Dive Club, 213/675-2123
- 16 Catalina Checkout: Dive 'n Surf, 213/372-3483
- 17 San Nicolas: John Roodenberg, 213/536-0404
- 18 Catalina/Backside: Dive 'n Surf, 213/372-3483
- 24 San Clemente: Dive 'n Surf, 213/372-3483
- 25 Begg Rock: Desert Divers, 805/948-6801

Wild Wave, 213/534-0034

22nd St. Landing
65/26 Divers/Capt. Mickey Pittman
Call for available dates.

LONG BEACH

Mr. C, 213/831-9449

Long Beach Sportfishing
50/40 Divers/Capt. Tom Rossin
Call for available dates.

Sundiver, 213/434-1198

Seaport Village
53/28 Divers/Capt. Rich Wallace
Call number above for open boats.
All dates not listed open for charter.

September:

- 1 San Clemente: Pacific Sporting Goods, 213/434-1604

2-3 Outer Islands: Openwater Habitat, 714/744-8355

7-9 Private Charter

- 15 Catalina: Pacific Sporting Goods, 213/434-1604
- 16 Catalina: West Coast Divers, 818/708-8136
- 22 Catalina: Ski & Sport, 714/633-1880
- 23 San Clemente: Len Tillem, 973-5171
- 29 Catalina: West Coast Divers, 818/708-8136
- 30 Pacific Sporting Goods, 213/434-1604

October:

- 2 Catalina/Night Dive: Open Boat
- 3 Catalina/Night Dive: Ski & Sport, 714/663-1880
- 5 Openwater Habitat, 714/744-8355
- 6-7 Outer Islands: West Coast Divers, 818/708-8136
- 11-12 Outer Islands: Subsurface Progression, 707/964-3793
- 13 Ski & Sport, 714/663-1880
- 13 West Coast Divers, 818/708-8136
- 20 San Nicolas: U/W Photo Society, 385-7381
- 21 Open Boat
- 27 West Coast Divers, 818/708-8136
- 28 Ski & Sport, 714/663-1880

November:

- 3-4 Openwater Habitat, 714/744-8355
- 10-11 Pacific Sporting Goods, 213/434-1604
- 14 Ski & Sport, 714/663-1880
- 17 Catalina: Pacific Sporting Goods, 213/434-1604
- 18 West Coast Divers, 818/708-8136
- 24-25 West Coast Divers, 818/708-8136

AVALON HARBOR

King Neptune, 213/510-2616

65/30 Divers/Capt. Bob Kennedy

September:

- 1 Goat Harbor, 213/510-2616
- 2 Eagle Rock/Whale Rock, 213/510-2616
- 3 Salte Verde/Church Rock, 213/510-2616
- 4 Shark Dive: Marina del Rey Divers, 213/827-1131
- 27-29 San Nicolas/Santa Barbara, 213/510-2616

October:

- 6 Cortez Bank: National Scuba, 714/847-4386
- 7 Tanner Bank
- 8 San Nicolas

SAN DIEGO

America II, 619/584-0742

Islandia Sportfishing Landing, Mission Bay
35/25 Divers/Capt. Rich Cassens
Call number above for open boats.

September:

- 1 Wreck Alley: Open Boat
- 2 Pt. Loma Kelp Beds: Open Boat
- 5 Wreck Alley: Open Boat
- 8 La Jolla Kelp Beds: Open Boat
- 9 Wreck Alley: Open Boat
- 12 Wreck Alley: Open Boat
- 15 Pt. Loma Kelp Beds: Open Boat
- 16 Wreck Alley: Open Boat
- 19 Wreck Alley: Open Boat
- 22 La Jolla Kelp Beds: Open Boat
- 23 Wreck Alley: Open Boat
- 26 Kelp Forest: Open Boat
- 29 Wreck Alley: Open Boat
- 30 Wreck Alley: Open Boat

October:

- 3 Wreck Alley: Open Boat
- 6 Wreck Alley: Open Boat
- 7 Kelp Forests: Open Boat

- 10 Kelp Forests: Open Boat
- 13 Wreck Alley: Open Boat
- 14 Lobster Diving: Open Boat
- 17 Lobster Diving: Open Boat
- 20 Kelp Forests: Open Boat
- 21 Lobster Diving: Open Boat
- 24 Lobster Diving: Open Boat
- 27 Wreck Alley: Open Boat
- 28 Lobster Diving: Open Boat
- 31 Lobster Diving: Open Boat

November:

- 3 Wreck Alley: Open Boat
- 4 Kelp Forests: Open Boat
- 7 Lobster Diving: Open Boat
- 10 Pt. Loma Kelp Beds: Open Boat
- 11 Wreck Alley: Open Boat
- 14 Lobster Diving: Open Boat
- 17 Wreck Alley: Open Boat
- 18 La Jolla Kelp Beds: Open Boat
- 21 Lobster Diving: Open Boat
- 24 Wreck Alley: Open Boat
- 25 Pt. Loma Kelp Beds: Open Boat
- 28 Lobster Diving: Open Boat

Bottom Scratcher,

619/224-4997

Pt. Loma Sportfishing
63/21-28 Divers/Capt. C. Humphries

September:

- 1-3 San Clemente: SSI, 602/995-5926
- 8 Coronados: SSI, 602/995-5926
- 9 Coronados: San Diego Divers, 619/224-3439
- 15-16 San Clemente: SSI, 602/995-5926
- 22-23 San Clemente: SSI, 602/995-5926
- 29-30 San Clemente: SSI, 602/995-5926

October:

- 3-4 San Clemente: Diving Locker, 619/272-1170
- 6-8 San Clemente/Cortez Bank: SSI, 602/995-5926
- 13 Coronados: SSI, 602/995-5926
- 14 Coronados: Hal Collett, 602/669-6141
- 20-21 San Clemente: SSI, 602/995-5926
- 28 Coronados: San Diego Divers, 619/224-3439

November:

- 3-4 San Clemente: SSI, 602/995-5926
- 10 Coronados: SSI, 602/995-5926
- 17 Coronados: Waterworld, 602/763-5531
- 18 Coronados: Adventures in Diving, 714/499-4517
- 23-25 San Clemente: SSI, 602/995-5926

Horizon, 619/277-7823

H & M Landing
78/35 Divers/Capt. Greg Grivetto

September:

- 1-3 Cortez Banks/San Clemente: Blue Cheer, 213/828-1217
- 8 Coronados: Sport Chalet, 619/224-6777
- 9 Coronados: Openwater Habitat, 714/744-8355
- 15-16 Coronados: Reef Seekers, 213/652-4990
- 21-22 San Clemente: Sundiver, 602/996-7665
- 23 Coronados: Sport Chalet, 619/224-6777
- 29-30 San Clemente: El Mar Dive, 602/833-2971

October:

- 6-7 Cortez Banks/San Clemente: Sport Chalet, 619/224-6777
- 12-13 San Clemente: Sundiver, 602/996-7665
- 14-16 Cortez Bank/San Clemente: High Sierra Divers, 916/823-7821
- 20 Coronados: Sport Chalet, 619/224-6777
- 21 Pt. Loma Kelp Beds: Aqua Tech, 619/237-1800
- 27-28 Cortez Banks/San Clemente: P&L Dive Center, 602/343-1500

November:

- 3 Coronados: Sport Chalet, 619/224-6777

17 Coronados: Sport Chalet, 619/224-6777
23-25 San Clemente: Sundiver, 602/996-7665

Sand Dollar, 619/224-4997

Pt. Loma Sportfishing
65/28 Divers/Capt. Bill Johnston

September:

- 1 San Clemente: Ocean Enterprises, 619/565-6054
- 2-3 San Clemente: Diving Locker, 619/272-1120
- 8-9 San Clemente: Max Grooms, 702/293-6648
- 16 Coronados: Diving Locker, 619/272-1120
- 17-19 San Clemente: Univ. of Utah, 801/486-2566
- 22-23 San Clemente: San Diego Divers, 619/224-3439
- 29 Coronados: PHL, 602/343-1500
- 30 San Clemente: Adventures in Diving, 714/499-4517

October:

- 3-4 San Clemente/Cortez: San Diego Divers, 619/224-3439
- 6-7 San Clemente/Cortez: Ocean Enterprises, 619/565-6054
- 12-14 San Clemente/Cortez: Thunder Island, 801/776-6316
- 20-21 San Clemente/Cortez: Diving Locker, 619/272-1120

November:

- 3 Closed Charter
- 4 Coronados: Diving Locker, 619/272-1120
- 10 Coronados: PHL, 602/343-1500
- 17 San Clemente: Diving Locker, 619/272-1120
- 18 Coronados: San Diego Divers, 619/224-3439

WASHINGTON

Sea Wolf, 206/293-4248

Cap Sante Boat Haven
55/18 Divers/Capt. Jess & Allan Starnes
Available weekdays.
Call above number for open boats or group charter information.

September:

- 1-3 San Juan Islands: Open Boat
- 8-9 San Juan Islands: Open Boat
- 15-23 Canadian Gulf Islands: Open Boat
- 29-30 San Juan Islands: Open Boat

October:

- 1-5 Canadian Gulf Islands: Open Boat
- 6-7 San Juan Islands: Open Boat
- 13-14 San Juan Islands: Open Boat
- 20-21 San Juan Islands: Open Boat
- 27-28 San Juan Islands: Open Boat

November:

- 3-4 San Juan Islands: Open Boat
- 10-11 San Juan Islands: Open Boat
- 17-18 San Juan Islands: Open Boat
- 23-25 San Juan Islands: Open Boat

Star Fire, 206/364-9858

Cap Sante Marina
54/24 Divers/Capt. Gordon Bradley
Call number above for chartering information.

September:

- 1 San Juan Islands
- 2 San Juan Islands
- 3 San Juan Islands
- 8 San Juan Islands
- 9 San Juan Islands
- 15 San Juan Islands
- 16 San Juan Islands
- 18-21 Powell River/Canada
- 22 San Juan Islands
- 23 San Juan Islands
- 29 San Juan Islands
- 30 San Juan Islands

Washington Diver I & II, 206/676-8029

21' & 27'6 Divers/Capt. Dennis Withner
Available 7 days a week.
Min. 4 divers to reserve boats or join open weekend charters.

DIVE TRAVEL NEWS

Liburdi Leads Sea & Sea Photo Course Aboard *Ocean Spirit*

A hands-on photo workshop specifically on the use of Sea & Sea underwater photographic equipment is being held aboard the *Ocean Spirit* October 14-21, 1990. Conducted by photographer Joe Liburdi, author of the book *How to Use Sea & Sea*, the program will combine classroom sessions with guided underwater assignments. Film will be processed daily and the results critiqued. Topics covered will include the behavior of light underwater, techniques of wide angle photography, how to take macro and close-up photographs, strobe photography, composition and equipment maintenance. Participants will have the opportunity to use the full line of Sea & Sea equipment, including the new Motormarine II. Nikonos users will be able to experiment with Sea & Sea lenses and strobes designed for Nikonos cameras and compare their performance with other manufacturers' accessories.

The 457-foot dive/cruise ship *Ocean Spirit* cruises the western Caribbean where divers are treated to the world-class reefs, pinnacles and walls of Guanaja, Roatan, Belize and Cozumel.

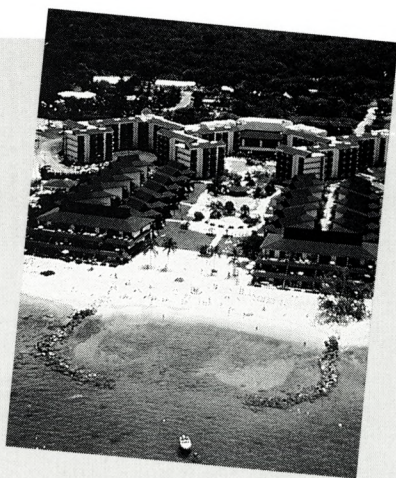
The package costs \$1,350 for divers, \$1,200 for nondivers (\$100 additional for the workshop) and includes air fare from Los Angeles, one night at the St. Petersburg Hilton, and eight days/seven nights accommodations with meals, transfers, tanks, weights and belts.

For more information, call Joe Liburdi at (619) 673-0373 or Jim Hill at Sportours at (800) 331-7800.

Chris Newbert Talks Photography Aboard the *Kona Aggressor*

Award-winning photographer Chris Newbert will be aboard the *Kona Aggressor* March 30 to April 6, 1991, to share his extensive knowledge of underwater photography while cruising the Kona Coast and diving underwater caves and lava tubes amid a variety of reef fish unique to the Hawaiian waters. The trip costs \$1,895 plus air fare and is designed but not limited to underwater photographers.

The *Kona Aggressor* is a 110-foot luxury live-aboard with private heads and showers in each cabin, a large sundeck, a shaded bar and barbecue area and hot tub. The cost of the trip includes all diving, tanks and weightbelts, gourmet food and photo instruction. E-6 photo processing and equipment rentals are additional.



Ramada's Grand Cayman Resort Offers Special Dive Packages

For diving enthusiasts, the Ramada Treasure Island Resort on Grand Cayman offers a range of "Dive Our Crystal Clear Caribbean" packages that include accommodations, tanks and weightbelts and the use of all resort facilities.

Ramada's four day/three night program includes two two-tank morning dives and is priced at \$267 (\$187 for a nondiving companion). There is also a six-day/five-night dive program for \$472 (\$312 for a nondiving companion) that includes three two-tank morning dives plus one Stingray City or one night dive, and an eight day/seven night dive program for \$677 (\$437 for a nondiving companion) which includes five two-tank morning dives plus one Stingray City dive and one night dive. All packages are per person, double occupancy.

The Ramada Treasure Island Resort is situated on a lush, 25-acre site fronting Seven Mile Beach, only minutes away from downtown Georgetown.

For reservations contact your travel agent or Ramada's international reservations desk at (800) 228-9898.

For more information contact Joel or Karen Schulman at 1500 Crossroads of the World, Hollywood, CA 90028; (213) 962-5600.

Australia's Lizard Island Upgrades its Diving Center

Lizard Island, Australian Airlines' resort in Northern Queensland, is upgrading and expanding its diving center at a cost of more than \$150,000. The new center, at the western end of Anchor Bay, will have a full dive training facility, complete with classroom, audio visual aids and wet storage room.

Rates at Lizard Island run from \$255 to \$320 per day per person and include all meals and activities with the exception of fishing charters. For more information call (800) 922-5122.

Continued

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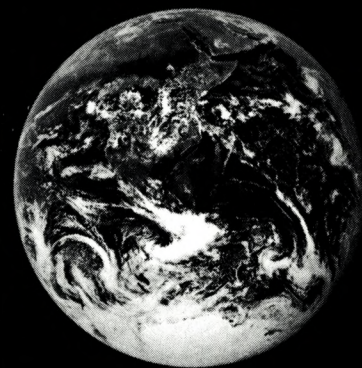
P.O. Box 21667, Ft. Lauderdale, FL 33335

Tel. (305) 463-9130; (800) 223-6961

FAX (305) 463-7532

Or call the island directly:

Tel. (809) 368-2014; FAX (809) 368-2015



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DIVE TRAVEL NEWS

Shore-based and Live-Aboard Diving Available at Papua New Guinea

Tropical Adventures has announced the introduction of its newly expanded Papua New Guinea dive program. The new program features shore-based diving facilities at Walindi Plantation, Rabaul and Madang, and the diving includes virgin coral reefs and WWII-vintage wrecks.

Traveling divers have the option to select one of several wilderness lodges as an extension to their diving adventure. These lodges offer a touch of luxury while remaining environmentally low-impact, and permit travellers an opportunity to experience the unique culture, plant and wildlife of the remote Sepik River and Highlands regions.

To compliment the land-based diving and touring facilities, Tropical Adventures offers a selection of live-aboard boats with such exotic names as *Melanesian Discoverer*, *Sepik Spirit* and *Telita* that travel to diving locales and cultural spots that up until now have been inaccessible.

For more information about diving Papua New Guinea contact Tropical Adventures Travel at 111 Second North, Seattle, WA 98109; (800) 247-3483 national, or (206) 441-3483 in Washington.

Baja's Melia Cabo Real Hotel Officially Opens

The \$34-million Melia Cabo Real has been opened at Los Cabos by Melia Hotels of Mexico. The new hotel, located at the midway point of a 19-mile desert corridor between the towns of San Jose del Cabo and Cabo San Lucas, is less than 15 miles from the San Jose del Cabo International Airport and offers 292 rooms, seven suites and a breathtaking view of the Sea of Cortez.

All rooms include 110-volt electrical service, air conditioning, satellite color television, bedside lighting control centers, mini bars and landscaped private terraces. Dining options include a haute cuisine restaurant, a beachfront restaurant specializing in seafood, a casual cafe and room service. Other hotel features include lounges, a swim-up bar, nightly live entertainment, a shopping arcade, a hairstyling salon and a travel agency.

Recreational facilities include tennis courts and a complete health center with massage, sauna, Jacuzzi, solarium, aerobics, a lap pool and fitness equipment. The resort's staff can arrange boat tours, diving tours, horseback riding and bike rentals.

For reservations or more information call (800) 336-3542. ☐

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PRODUCT REVIEWS

SAS's Titanium Wetsuit

One of the great things about diving warm water is that you get to wear lighter-grade wetsuits which tend to be more comfortable and offer a wider range of motion. They're also easier to pull on, and they reduce the amount of weight you have to strap around your waist.

Well, what if there was one wetsuit that could offer the increased comfort and range of motion of a $\frac{3}{16}$ -inch suit, enable you to drop 25 percent of the lead off your weightbelt, and *still* provide you with the thermal protection of $\frac{1}{4}$ -inch wetsuit? Impossible, you say? Not anymore, at least not since Sub-Aquatic Suits (SAS) introduced its new Titanium wetsuit.

The suit itself isn't really made of titanium. The outside of the suit is actually a standard grade neoprene; it's the inside of the suit, the titanium *lining*, that's the key to this innovative design.

We decided to compare an off-the-rack 4mm (approximately $\frac{3}{16}$ -inch) SAS Titanium wetsuit with a first-rate custom $\frac{1}{4}$ -inch wetsuit. While both wetsuits kept us equally toasty at depth in 60-degree water, we found that the lighter, thinner titanium suit was much easier to pull on and off, offered much more range of motion, was much more comfortable, took up considerably less space in our dive bag, and, the best yet, enabled us to drop a full 25 percent of our weight (with the brand-new $\frac{1}{4}$ -inch suit we needed 26 pounds to attain slightly negative buoyancy; with the SAS Titanium 4mm we needed only 19 pounds).

According to SAS, the suit is also supposed to dry faster than a $\frac{1}{4}$ -inch suit (we can't vouch for that but it makes sense, seeing as how the material is thinner) and it's not supposed to keep you as overheated between dives. While these subtle benefits may be valid, they pale next to the main reason why we loved this suit; it was a strange but exhilarating feeling to be diving the waters of Southern California with the freedom and ease of what felt like a Baja- or Hawaii-style wetsuit.

The SAS Titanium suit is available in 4mm or 6mm thicknesses in black with a choice of royal blue, red or silver gray accents. The suits run in standard adult men's and women's sizes. The 4mm model retails for about \$500; the 6mm for about \$530. For custom fittings, add another \$60.

For more information, contact SAS at 15530 Broadway Center St., Gardena, CA 90248; (800) 468-1076 in CA; (800) 223-7365 national. ★★☆☆½



Offers as much thermal protection as a $\frac{1}{4}$ -inch wetsuit.

Mares' Californian Pneumatic Speargun

Sleek. Powerful. Efficient. Lethal. These are all words which describe the Mares Californian Pneumatic Speargun. This pneumatic proved to be twice as powerful as a single-band gun, 50 percent more powerful than a double-band gun and 30 percent more powerful than a triple-band speargun of the same barrel length (35 inches). The internal trigger mechanism is complex and is sealed in lubricant. It is basically maintenance-free, requiring only a freshwater rinse after use and a drop of oil in the barrel.

Although it comes with a hand pump, it shouldn't be necessary to ever have to use it. The gun actually recaptures the pressurization released when the spear shaft is fired. The small amount of pressurization that is lost is recouped when the spear shaft is reloaded.

Loading the pneumatic requires a piece of equipment called a hand loader. It's basically a T-shaped handle with a metallic cup which fits over the tip of the spear and enables you to push the shaft into the barrel (without punching a hole in your hand). Unloading the gun is extremely simple: make certain there are no divers or swimmers nearby, place the safety in the fire mode, point the barrel parallel to the surface above and pull the trigger.

A two-position power adjustment lever enables you to fire at full power, or if in close proximity to your game, at a reduced power. The low-power position is also used when loading the gun.

The trigger release mechanism is patented, and is fully adjustable. You can set the sensitivity of the trigger pull to your own preference. Likewise, a patented line release arm protrudes at 90 degrees to the trigger guard, thus preventing any binding of the trigger mechanism by a too tightly wrapped line.

The Californian comes with its own vinyl carrying case. Other available accessories include a line reel and a neoprene cover to make the gun neutrally buoyant. A variety of shafts and spear tips are available.

A two-year renewable limited warranty covers all parts, materials and workmanship. After two years the gun should be taken to an authorized Mares dealer for servicing, which entails changing the oil, internal and O-ring inspection and repressurization. The cost for this service is \$25.

The Mares Californian carries a suggested retail price of \$249. For more information visit your local Mares retailer or contact Mares at 4801 North 63rd Street, Boulder, CO 80303; (800) 257-5100. ★★☆☆



More powerful than even triple-band spearguns of comparable length.

PRODUCT REVIEWS

Tabata's Tusa X-Pert BC

The Tusa BCJ-1000 X-Pert buoyancy compensator is Tabata's offering in the bladderless BC market. Because of its single-bag design, the X-Pert is compact and streamlined like most contemporary bladderless BCs, but from there it goes a little above and beyond with a number of handy features that contribute to diver comfort.

On the X-Pert it seems like *everything* is padded, but what stands out most is the padded backpack. Although it takes longer to dry than a standard hard plastic backpack, this padded backpack makes the X-Pert not only incredibly comfortable, but lets you fold up the unit into a much smaller package, an important advantage for dive travelers.

The X-Pert also comes with special shoulder pads that make wearing the BC with the tank attached extremely comfortable when you're not wearing a wetsuit. Even the cummerbund is padded.

The pockets are detachable and come in a variety of colors (they cost about \$30 a pair when purchased separately from the jacket). The pockets are big and have mesh bottoms for draining. The large pocket flaps make them easy to find underwater, but getting the velcro parts to meet underwater when you want to close the pockets can be a chore. However, you don't have to eat up your right pocket for storing your safe second; there's a sort of secondary



Lots of strategically-placed padding but still compact.

compartment behind the main pocket that's perfect for that job.

There are D-rings and hose clips all over the X-Pert. We counted six D-rings along the front of the jacket for clipping miscellaneous gear, and a big clip that's used to secure the power inflate hose. This works much better than the traditional velcro fastener (if you pull the hose out of the clip to dump some air, for example, it's easy to clip it back into place for future use). A smaller double hose clip secures your instrument console hose under your left arm where it's easy to use even if the hose remains clipped.

Finally, the X-Pert has a soft double banded tank supporter with an interesting metal cam-buckle that can get a good grip on a tank and then cinch it all down with a definite metallic snap.

The Tusa X-Pert BCJ-1000 comes in basic black, with a variety of attachable colored pockets and shoulder pads. Complete with pockets and shoulder pads, it retails for \$458. For more information, contact Tabata USA, 2380 Mira Mar Ave., Long Beach, CA 90815; (213) 498-3708.★★★★

Pacific Diver's Product Review Rating System

- ★★★★★ Outstanding product. Real state-of-the-art perfection!
- ★★★★ A great product, making diving more fun, and a lot easier.
- ★★★ A good product. Solid and functional.
- ★★ A real disappointment
- ★ Forget about it.

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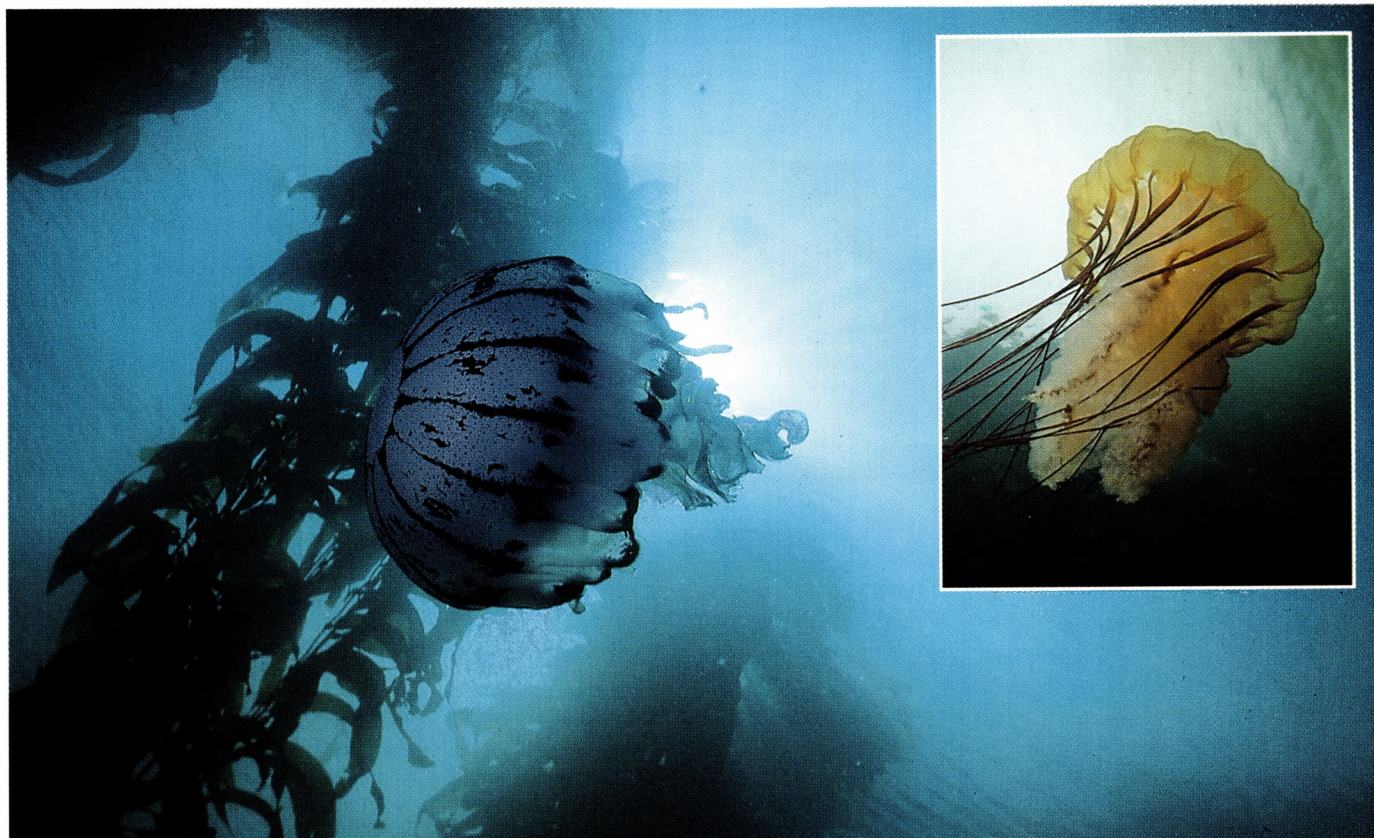
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***Pelagia colorata*
& *Chrysaora melanaster***
Phylum: Cnidaria
Class: Scyphozoa
Order: Semaestomeae
Family: Pelagidae

Article and photos by David Wrobel

Few creatures of the sea can rival the sheer beauty of *Pelagia colorata* (purple-striped jellyfish) and *Chrysaora melanaster* (sea nettle), two large scyphozoan jellyfish that commonly visit inshore waters along the Pacific Coast. Although generally sighted within the huge, barrier-free expanse of the open ocean, individuals and occasionally huge swarms often venture into the confines of kelp forests, coves and other coastal areas. Both are among the giants of the invertebrate world, with bells (the main part of the body) reaching a meter in diameter and tentacles that trail for several meters.

Jellyfish swim with the aid of the rhythmic pulsing of the powerful bell muscles. The globular bell of *Pelagia* has a purple-line pattern radiating from the center of the circle, which distinguishes it from the plain brownish bell of *Chrysaora*. A diaphanous veil of translucent white oral arms trails from around the mouth, and thin red whip-like tentacles are arranged around the margin of the bell. Both species are armed with potent batteries of nematocysts used for defense and for capturing prey.

The tentacle and oral arm nematocysts are the stingers that convert what may look like a harmless lump of jelly washed up on the beach into a potentially unpleasant experience if touched with bare

skin. In the water, copepods, larval fish, other zooplankton and even large fish find the tentacles to be a serious threat as well.

Reproduction for most species within this group of jellyfish entails a complex alternation of sexual and asexual generations. The motile jellyfish stage is known as the medusa and is responsible for the production of eggs and sperm. Males release clouds of sperm that are picked up by the females and brought to the waiting eggs. The sessile polyps that develop from the fertilized eggs produce numerous swimming ephyrae (tiny medusa) through an asexual budding process. The ephyrae are dispersed in the currents and eventually develop into adult jellyfish.

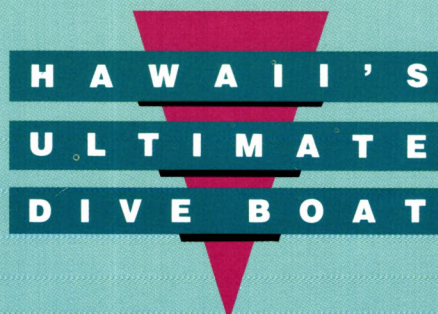
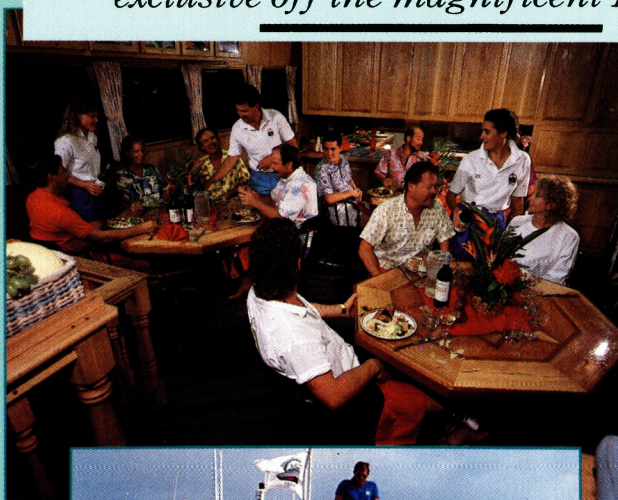
Large jellyfish are frequently targets for a variety of hitchhikers, including amphipods, juvenile crabs and certain fish (such as medusafish and juvenile jacks). These wanderers find a safe haven within their gelatinous host, along with a convenient source of food.

Rather than striking fear, the sighting of a group of jellyfish should delight any diver. Spotting these distinctive inshore visitors can be the highlight of a visit into a kelp forest. □

David Wrobel is an aquarist and biologist at the Monterey Bay Aquarium, with a special interest in life in kelp forests.



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The Underwater HI-TECH Family



The image shows three Beuchat diving watches against a blue background. From left to right: the LCM Digital watch is round with a black strap; the Aladin Sport watch is rectangular with a black strap; and the Aladin Pro watch is rectangular with a grey strap. Each watch has a digital display showing depth, dive time, and other diving parameters.

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Maximum depth	•	•	•
Monitoring rate of ascent	•	•	•
Surface interval	•	•	•
Logbook for prior dives	4	9	9
Temperature (water/air)	•	-	-
No decompression time	-	•	•
No decompression limit (scrolling)	-	•	•
Deepest decompression stop	-	•	•
Alarm indicating contravention of decompression	-	•	•(1)
Desaturation time	-	•	•
Altitude sector (if at high altitude)	-	•	•
High altitude adaption time	-	•	•
Tissue number indicator for incomplete decompression	-	•	•
Operating mode indicator	-	•	•
Low battery warning	-	•	•
No flying indicator	-	-	•
Waiting time prior to flying	-	-	•
Acoustic ascent rate & decompression alarm	-	-	•
Luminous florescent face	-	-	•
Total time of ascent	-	-	•

(1) - 2 step flashing and acoustic beep alarm